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Spectrum Engineering (Firm)
Benbow Project, Stillwater County, Montana

BENBOW PROJECT

DSL - AMRB No. 90-004

FINAL REPORT

Stillwater County, Montana

MONTANA
ABANDONED MINE
RECLAMATION BUREAU

January 29th, 1991

SPECTRUM ENGINEERING

Billings, Montana

FINAL REPORT

BENBOW PROJECT
DSL - AMRB No. 90-004

Stillwater County, Montana

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DSL - AMRB No. 90-004

Stillwater County, Montana

Sites Located in Southeastern Montana

Benbow Mine

T5S, R15E, Section 25 and
T5S, R16E, Sections 30 & 31

Benbow Mill

T5S, R16E, Section 21

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BENBOW PROJECT FINAL REPORT

1. INTRODUCTION

1.1 Project Description

The Benbow Project consists of two sites named the Benbow Mine and the Benbow Mill. The Benbow Project is located in southern Stillwater County about 40 miles southwest of Columbus in southeastern Montana. The Benbow Mine extracted chromite during World War II with no mining taking place after the 1940's. The need for this project was to protect human health and safety caused by dangerous openings and structures.

1.1.1 Location and Access

The legal description for the mine is the SW ¼ of Section 30 and the N ½ of Section 31, Township 5 South, Range 16 East and the SE ¼ of Section 25 of Township 5 South, Range 15 East. The latitude is 45° 21.9′ and the longitude is 109° 48.4′. The mill is located in the NW ¼ of Section 21, Township 5 South, Range 16 East. The latitude at the mill is 45° 23.3′ with the longitude being 109° 45.9′.

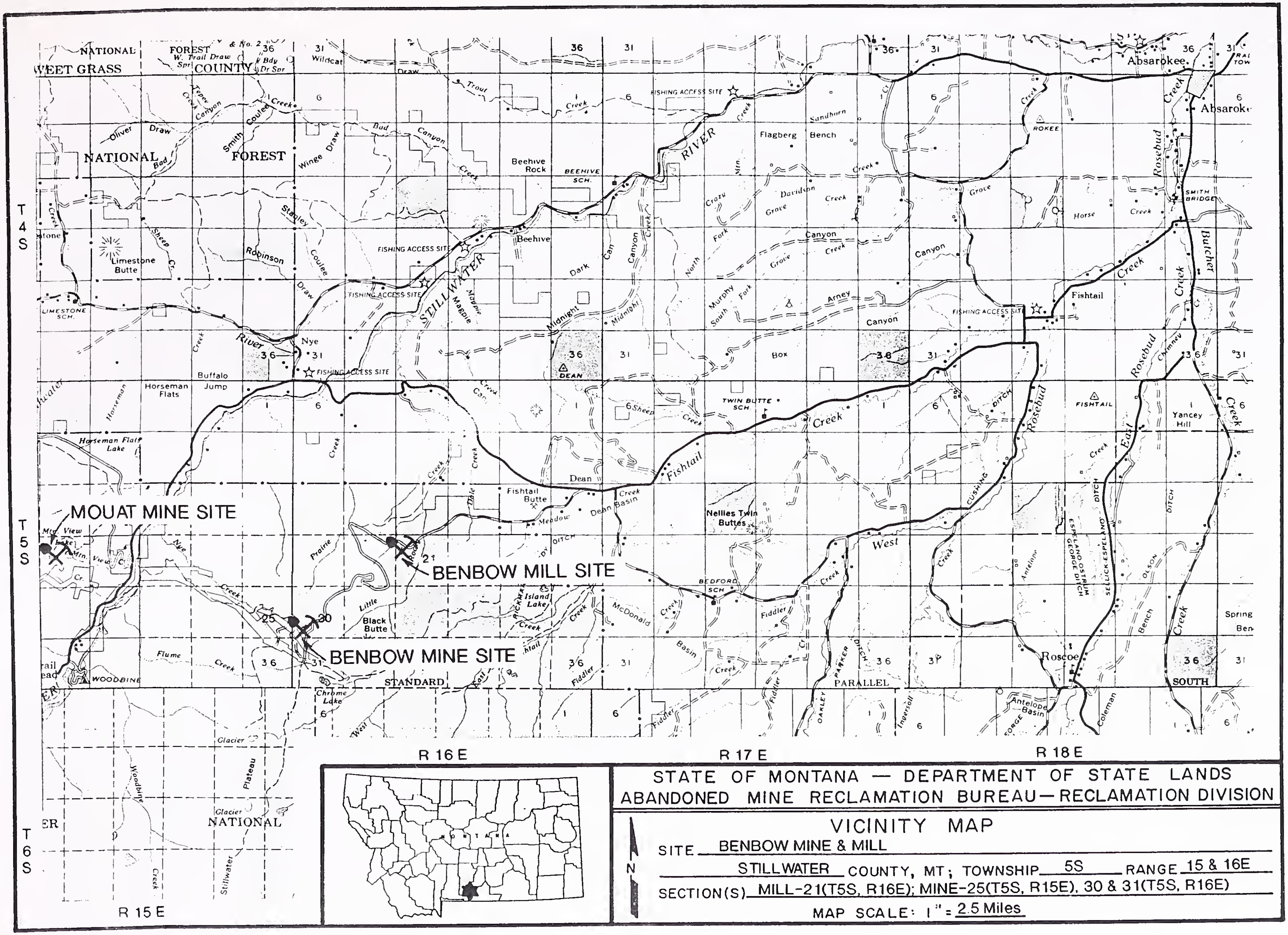
The mine is found on the 7 ½ minute USGS quadrangle named Mount Wood and the mill is located on the Nye quadrangle. Both sites are totally within Stillwater County.

Access to the site is by exiting Interstate 90 at Columbus and proceeding on Montana Highway 78 to Absarokee. Travel through Absarokee and take the Fishtail turn-off and proceed on Highway 419 through Fishtail to Dean. Proceed from Dean on the gravel road (USFS road 1414) which intersects Montana Highway 419 at Dean. A sign on the highway indicates the Benbow road. The reader is referred to the Site and Vicinity Maps following this page for further description of the access to the sites.

1.1.2 Land Ownership

The Benbow Mine site is located on 7 patented mining claims named Black Rock, Majestic, Big 7, Titanic, Lucky Strike, Eclipse and War Eagle. Chromium Products Corporation acquired this property on 11/24/1933 when they were patented and have held title since then. They changed their name to Benbow Mines Ltd. in the fall of 1988. The contact is Ben Berg, Jr. at phone 406/587-3181. His address is 910 Technology Blvd. #A, Bozeman, Montana 59715. The claims are under lease to Chrome Corp. International with the address shown under the Mill site ownership.

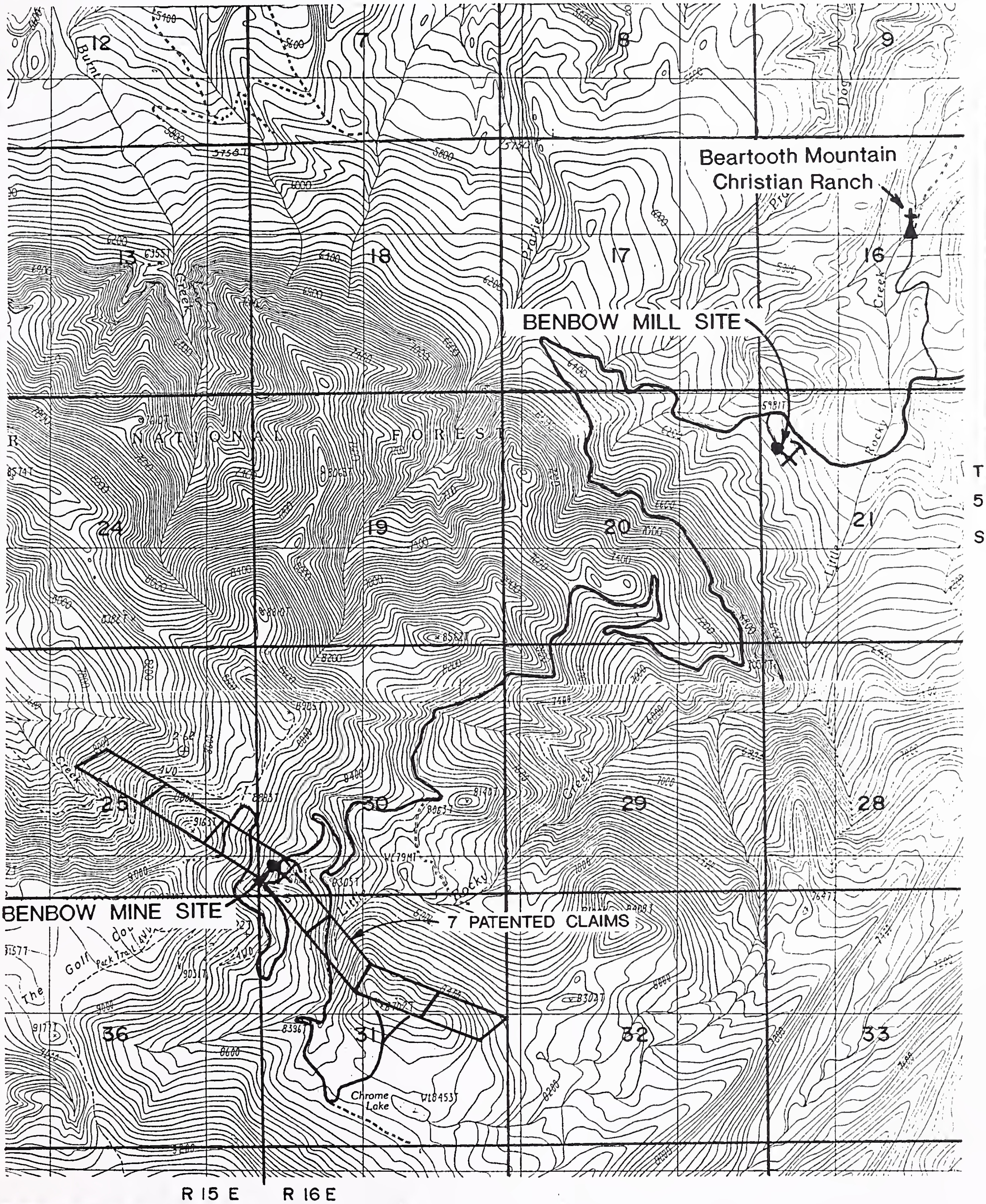
The Benbow Mill site is located on 21 unpatented lode mining claims named Mate 1 through 21 staked February 13th to the 18th, 1986. The surface owner is the U.S. Government, Custer National Forest, Box 3420, Route 2, Red Lodge, Montana 59068 at phone 406/446-2103. The mineral claimant is Chrome Corporation International, c/o John Sellar their vice-president of operations, 12640 W. Cedar Drive, Suite B, Lakewood, Colorado 80228 at phone 303/969-8903.

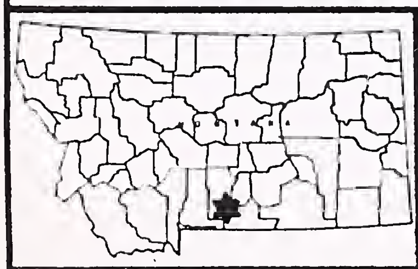


STATE OF MONTANA — DEPARTMENT OF STATE LANDS
ABANDONED MINE RECLAMATION BUREAU—RECLAMATION DIVISION

VICINITY MAP

SITE BENBOW MINE & MILL
STILLWATER COUNTY, MT; TOWNSHIP 5S RANGE 15 & 16E
SECTION(S) MILL-21(T5S, R16E); MINE-25(T5S, R15E), 30 & 31(T5S, R16E)
MAP SCALE: 1" = 2.5 Miles





STATE OF MONTANA — DEPARTMENT OF STATE LANDS
ABANDONED MINE RECLAMATION BUREAU—RECLAMATION DIVISION

SITE MAP

SITE BENBOW MINE & MILL SITE
STILLWATER COUNTY, MT; TOWNSHIP 5S RANGE 15 & 16E
SECTION(S) 21, 25, 30, & 31
MAP SCALE: 1" = 3000' U.S.G.S. QUAD SHEET NYE & MT. WOOD

1.1.3 History

The following history and background is excerpted from United States Bureau of Mines Report of Investigations 4368.

The occurrence of chromite along the Stillwater complex in Stillwater and Sweetgrass Counties, Montana, was first known more than 100 years ago. It was, however, not until the war demand of 1917 and 1918 that some of the deposits were actively explored, but no ore shipments were made, When the war demand ceased, little further exploration was done except at the Benbow property, which in 1929 was prepared for mining operation. Financial uncertainties in that year caused its suspension. The seven claims were patented, however in 1933.

The Mouat and Benbow chromite deposits were examined by Paul T. Allsman, a Bureau of Mines engineer, in July 1939. As a result, the Bureau of Mines started extensive investigations of these deposits in August 1939. Subsequently eight other chromite deposits or areas along the Stillwater complex were investigated by the USBM.

As a result of threatened disruption of foreign chromite imports early in World War II, the Anaconda Copper Mining Co., as agent for the Government (Metals Reserve Corporation), began development at the Benbow property in June 1941. Soon afterward it started development of the Mouat-Sampson properties. In the spring of 1942, the Gish property was included in the development program. More than 12 million dollars was expended by the Government on camps, plants, equipment, development, operation, etc., at these three properties. The Benbow and Mouat-Sampson properties were brought into production. Although the chromite concentrates produced were not of high quality, they would have been of great value had the emergency continued. These operations were, however, closed by Government orders in 1943 after the sea lanes had been reopened and high-quality imported ore again became available.

The Benbow property, at the eastern end of the Stillwater complex, was located first in 1918. The Eclipse adit was begun, but all work was soon suspended. The property later was purchased by the Chromium Products Corp. A group of eastern men obtained a bond and lease on the property and in 1929 drove the Eclipse and Majestic adits. This work ceased the same year, and the property lay idle until 1939. The Bureau of Mines started its program of trenching the outcrop on August 21, 1939. The results were so encouraging that diamond core drilling was undertaken. Canadian interests acquired the property on a sales contract in 1940 and drove a new adit over 1,400 feet long. These interests suspended development when the Anaconda Copper Mining Co. took over as agent for the Government in June 1941.

Work by Anaconda Copper Mining Co.

The Anaconda Copper Mining Co., as agent for the Metals Reserve Corporation, began extensive underground development of the Benbow mine in June 1941. This work later was continued by them as agent for the Defense Plant Corporation. A mine plant, an ore-treatment plant, two large camps, and 3-1/2-mile aerial tram were constructed. The Reconstruction Finance Corporation reports that Government expenditures by the Anaconda Copper Mining Co. at the Benbow property, up to the time all operations were suspended and the plants placed on a stand-by basis in June 1943, amounted to $3,999,740. Of this amount, $700,975 was expended on mine development alone.

Mining: During 1941, 1942, and 1943 the Anaconda Copper Mining Co. drove 25,620 feet of drifts, crosscuts, and laterals; 11,630 feet of intermediates; 9,502 feet of raises; and 395 feet of shaft. Diamond drilling totaling 2,638 feet also was done.

Approximately 224,700 tons of ore containing 18.4 percent chromic oxide were mined and/or broken during this development and by sublevel stoping. This development, the areas stoped, and other features are shown in plan and longitudinal section on the Benbow Mine pre-construction Sheet 4 of 5 found in Attachment 5 at the back of the report.

Milling: The Benbow mill was designed to treat 1,000 tons of ore a day by gravity concentration, but only one 500-ton unit was completed. The ore was treated by crushing, grinding, classifying, and tabling. The mill operation was begun March 1, 1942, and continued until June 21, 1943, 427.7 days in all. During this period 186,369 dry tons of ore containing 18.34 percent chromic oxide were treated. The concentrates produced amounted to 72,566 dry tons containing 41.46 percent chromic oxide with a Cr:Fe ratio of 1.61. The mill recovery during the first 3 months in 1942 was 82.17 percent but had reached an average of 90.82 percent for the 6 months in 1943.

1.2 Project Objectives

This project was needed to protect health and safety caused by dangerous openings and structures left behind by past chrome mining activity completed for the U.S. Government. The site problems are described below:

1.2.1 Mill Site Problems

The mill structure was removed shortly after the end of World War II, but the massive concrete foundations remain. These foundations contain many holes and precipitous drop-offs that were probably used as sumps and for access to conveyor tail pulleys.

The structure is an "attractive nuisance" that draws over 200 children per year from a nearby church camp. If someone fell into one of the several holes in the foundations, they would fall vertically 20 feet onto a concrete floor and be severely injured or perhaps killed.

In addition to the hazardous concrete structures, three 10 foot wide by 15 feet deep trenches with rotting wooden cribbing present a danger to the children. It appears that the trenches were dug and then covered with wood to house the conveyors.

1.2.2 Mine Site Problems

Chromite was mined from two different areas of the mine, and in general the same problems exist at both the Chrome Peak and Eclipse Adit sites. The steeply dipping (70°- 80°) chromite vein(s) were developed from the outcrop using adits spaced about 200 feet apart vertically. The 1 - 6 meter thick ore zone was mined between the adit levels and sub-levels using open stoping techniques. In several areas the stopes broke through to the surface where they are currently exposed as long narrow trenches. A total of 1,670 linear feet of exposed stopes exist along the outcrop of the chromite vein system.

A steel headframe and ore bin sitting next to the road are an attractive nuisance that present a moderate danger to curious visitors who climb around on the structures. The wooden ore bin was originally scheduled to be demolished. However, Chrome Corporation requested that it be left intact after construction started. The openings in the structure were boarded shut and the headframe and ore bin were fenced.

2. RESPONSIBLE PARTIES

2.1 Contractor

The successful low bidder was Donnes Construction. His address is shown below:

Donnes Construction
4002 McGirl Road
Billings, Montana 59105
Phone: 406/373-6601
MT Contractor's License: 5996 A

2.2 Reclamation and Engineering Plan

Spectrum Engineering was assigned the responsibility of preparing the reclamation and engineering specifications prior to contractor selection. Plans conforming to the general requirements were formulated in the field to meet specific conditions.

Spectrum's address is shown below:

Spectrum Engineering
3302 4th Avenue North
Billings, Montana 59101
Phone: 406/259-2412

2.3 Quality Control Inspection

Spectrum Engineering performed the quality control inspection. The project engineer was Bill Maehl and the construction inspector was Hank Lowe.

2.4 AMRB Coordination

The AMRB Project Manager was Stu Levit, Montana Department of State Lands, Abandoned Mine Reclamation Bureau.

3. CHRONOLOGICAL LISTING OF EVENTS

3.1 Pre-Bid Conference

The first pre-bid conference was held on June 1st, 1990 at the Benbow Mill. Snow prevented access to the mine site. A second pre-bid conference was held on June 11th, 1990 at both the mine and mill sites.

3.2 Bid Date

The initial bid opening date was June 21st. This date was changed in Addendum #2 to June 26th, 1990.

3.3 Three Lowest Bids

There were 6 bidders on this project with bids ranging from $239,139.50 to $396,900.35. The three lowest bidders are listed below.

Donnes Construction	Ajax Contracting	Montgomery Construction
Billings, Montana	Victor, Montana	Hilger, Montana
$ 239,139.50	$ 248,461.25	$ 277,390.00

3.4 Contract Award

The contract was awarded to the low bidder after receiving all of his bonds and other required paper-work. Donnes Construction was the low bidder. They also performed all the work except for the hydroseeding which was done by H & S Landscaping out

of Billings, the fencing which was done by S & A Fencing (Bob Sherrodd) from Pompeys Pillar, the cone construction which was built by Empire Steel (Billings) and the foaming of the cone which was completed by D's Insulation (Billings).

The prime contractors address is shown under 2.1 Contractor above.

3.5 Notice of Award

The Notice of Award was dated June 29th, 1990 by the Department of State Lands and the Contractor acknowledged receipt of the Notice of Award on July 3rd, 1990.

3.6 Notice to Proceed

The Notice to Proceed was DSL dated July 6th and was accepted by the Contractor on July 13th. The work was to start no later than July 9th and be completed within 75 calendar days. The scheduled work completion was September 21st, 1990.

3.7 Construction Start-up

The Contractor started mobilizing his equipment to the Benbow Mine on July 5th, 1990.

3.8 Change Orders

There were two change orders written for this project. Copies of these change orders are included in this report as ATTACHMENT 2. The first change order was for closing 2 new adits for an additional sum of $3,750.00. The second change order was for final quantities adjustments for the sum of $1,260.50 and for purchasing and applying compost to the revegetation area at the request of the AMRB Project Manager at a cost of $20,502.94. The two change orders added a total of $25,513.44 to the contract price.

3.9 Work Stoppages

There were two work shut-downs. Spectrum Engineering requested one from July 12th-15th so that its construction inspectors could receive their 40 hour hazardous waste training. One weather day was given on September 20th. Work was completed except for revegetation and fencing on August 30th. Revegetation started on September 18th and was completed on September 22nd. Fencing was started on October 2nd and was completed on October 4th, 1990.

3.10 Requests for Payment

There were two payment requests on this project. Pay Request 1 was for the period from job start through August 9th. The amount completed for this pay request was $ 193,984.95. Subtracting the retainage left $174,586.45 earned to date. The final pay request was from August 9th through job completion. This pay request was for $ 90,066.49 with the total job cost being $ 264,652.94.

3.11 Substantial Completion

The date of Substantial Completion was October 4th, 1990.

3.12 Final Completion and Approval

Snow fall prevented a field inspection by the AMRB to date. The Final Completion date is one year from the Substantial Completion date or October 4th, 1991.

3.13 Final Payment

Final payment was made to the Contractor on November 14th, 1990. The check was lost in the mail and the process of getting a second check issued took place in January. Copies of both the first and second (final) payment requests have been included in ATTACHMENT 3.

4. CONSTRUCTION

4.1 Description of Project Plan

The goal of this project was to backfill or close dangerous mine openings and structures. These openings included shafts, adits, and stoping holes to surface. The structures included a wooden ore bin and a concrete mill structure with rotting conveyor galleries and vertical drop-offs. The reclamation construction difficulties were because of the extremely steep slopes.

4.2 Major Equipment List

Type	Year	Make/Model	Size/Horsepower	No. on Job
Bulldozer with Ripper	1972	Caterpillar D-7E	200 hp	1
Bulldozer with Ripper	1966	Caterpillar D-9G	350 hp	1
Bulldozer	1978	John Deere 750	120 hp	1
Motor Grader	1979	Caterpillar 130G	140 hp	1
Wheel Tractor-Scraper	1968	Terex TS-14	14 yd - 280 hp	1
Wheel Loader	1980	International 530	3 yd - 155 hp	1
Wheel Loader	1977	International 60	2 yd	1
Backhoe	1978	P & H 750	140 hp	1
Dump Truck	1980	AutoCar/Constructor	18 yd - 290 hp	1
Dump Truck	1972	Kenworth	12 yd - 350 hp	1
Service Truck	1948	Kenworth	335 hp	1
Water Truck	1953	Mack	3800 gallon	1
Trailer	1978	General Eng.	45 ton	1
Grainvayor Blower		Myers-Sherman F-88		1
Air Compressor		Ingersoll-Rand 125		1

4.3 Contractor Employees

The number of contractor employees on the job varied from 2 to 6 counting the Contractor himself.

4.4 Construction Activities

Donnes Construction moved his equipment to the Benbow Mine site and started work above the upper waste dump on the Chrome Peak side. He started with leveling off and filling the bottom of shafts and stopes on Holes A and B. After leveling was complete, a 12-inch pulley was set in place on top of the mountain with a 1¼ inch cable. He used a 12 yard dump truck and TS-14 scraper in a yo-yo operation to bring backfill material up the mountain (too steep to haul without assist). Stoping holes C through I were reclaimed by resloping the sides of the trenches and backfilling the trenches and shafts. This work was completed between 7/9/1990 and 7/29/1990 on the Chrome Peak side.

The work on the Little Rocky Creek side of the Benbow Mine reclamation was performed between 7/25/1990 and 8/8/1990. The shafts and stopes were filled by resloping the bank edges and by hauling waste dump material with dump trucks from the large dump in front of the Eclipse Adit.

The Eclipse Adit was secured on 8/7/1990 by installing a 4-foot diameter, 20-foot long culvert with locking gate into the entrance. The keys were given to the landowner and a signed receipt acknowledging that maintenance is the responsibility of the landowner was signed by Ben Berg on 10/18/1990.

Adit 6, which was inaccessible by equipment, was closed by blasting the top in. Hole K was backfilled with regraded material. Hole J was done by blasting the side down. Two extra open adits on the west side of Little Rocky Creek were closed by blasting the top and sides into the openings.

Shaft 5 on the hillside above the Eclipse Adit was closed on 9/21/1990 by placing an inverted pyramid-shaped steel cone into the opening. The cone was air-lifted from the top of the Eclipse waste dump and dropped into place by Tim Pfahler using the State of Montana Huey helicopter. Prior to placement, the cone will filled with foam. After placement in the shaft, two feet of cover soil was placed over the cone and foam filling.

At the request of Richard Miller of Chrome Corporation International, the wooden ore bin at the headframe was left intact. The original plans called for this structure to be removed and burnt. After construction started, consent was withdrawn for removal. Plyboard was installed on the sides of the wooden ore bin to seal up all openings. This work was done on 8/28 through 8/30/1990.

At the Benbow Mill site, the adit conveyor galleries (3) were regraded and all holes, concrete pillars, concrete structures and the high wall were backfilled. All work was performed in accordance with the site plans between 8/9/1990 and 8/29/1990.

The waste dump below the Mill which was supposed to be hauled up to the Mill for backfill material proved to be too wet for equipment to work in. After cutting into this pile, only the surface appeared to be the hard packed clay material. The material underneath was a sandy texture. After getting two pieces of tracked equipment stuck, the contractor requested that the project engineer examine the pile. Bill Maehl checked the site and felt that more damage would be done removing it than regrading it in place. The change was telephoned to Stu Levit who verbally approved this change. A borrow site was established directly behind the concrete mill structure. After regrading the waste pile, cover material was hauled down from the new borrow site at the Mill and placed over the recontoured area.

All disturbance areas were fertilized, seeded and hydromulched. Stu Levit requested the addition of 1/4 inch of compost (from Eco-Compost in Missoula) be applied to all disturbance areas to aid in reclamation efforts. The revegetation work took place between 9/14 and 9/22/1990.

On October 2nd through 4th, fence was installed around the headframe and across the open area above the upper waste dump to prevent vehicle access. This completed all of the work at both the Mine and Mill sites.

4.5 Quantities Used

Almost every bid item was based on a lump sum basis. This made the administration of the contract fairly straight-forward. No disputes were raised by the Contractor about the estimated quantities being wrong.

Item	Amount		Unit Cost
Provide Water	19,000.	gallons	$ 10.00 / 1000 gallons
Close Mine Openings	9.	each	$ 500.00 / opening
Adit Access Culvert with Door	1.	each	$ 2000.00 / each
Backfill Stoping	23890.	yards	$ 6.35 / yard
Blast Down Stope Edges	360.	yards	$ 6.95 / yard
Fabricate/Install Shaft Plug	1.	each	$ 5232.00 / each
Farm Fence (Type F-4M)	820.	feet	$ 1.00 / foot
Fence Double Panels	4.	each	$ 100.00 / each
Fence Single Panels	2.	each	$ 100.00 / each
Seed, Fertilize, Mulch at Mill	1.60	acres	$ 1050.00 / acre
Seed, Fertilize, Mulch at Mine	6.42	acres	$ 700.00 / acre
Blast 1 Adit Closed	1.	each	$ 2500.00 / each
Blast 1 Adit Closed	1.	each	$ 1250.00 / each
Purchase & Apply Compost	240.	yards	$ 85.43 / yard

5. PAYMENT REQUESTS

5.1 Pay Request

Two pay requests were processed for this project as addressed under Section 3.10 above. Copies of these pay requests have been included in ATTACHMENT 3.

5.2 Cost per Site

Site Name	Disturbed Acres	Cost/Acre	Total Project Cost
Benbow Mine	6.42	$ 37,161.18	$ 238,574.78
Benbow Mill	1.60	$ 16,298.85	$ 26,078.16
Total	8.02	$ 32,999.12	$ 264,652.94

5.3 Total Project Cost

The construction cost for the project was $264,652.94. The original bid was $239,139.50 and two change orders were issued for $25,513.44 bringing the total construction cost to $264,652.94. The total engineering cost for the project was $19,248.22. An analysis of the engineering costs versus construction costs is presented in ATTACHMENT 4.

6. PROJECT SUMMARY

6.1 Summary of Project

The project went as scheduled with few modifications. At the Mill site the only modification was leaving the waste pile adjacent to Little Rocky Creek in place. An additional borrow source was established directly behind the concrete structure. Borrow was hauled down and placed over the regraded waste pile. The net affect was to increase the reclamation acreage slightly from 1.07 acres to 1.60 acres.

At the Mine site, the scheduled removal of the wooden ore bin adjacent to the steel headframe was dropped per landowner request after construction started. The openings in the ore bin were boarded shut with plyboard which was screwed and nailed on. Less water was used due to several rain and snow storms during the course of construction. After opening up the entrance of the Eclipse Adit with the backhoe, the Construction Inspector and Contractor requested for safety reasons that the adit door be replaced with a 20 foot long culvert with locking access hatch (door).

Two additional adits were found on the hillside between Chrome Peak and Little Rocky Creek. These were change-ordered into the contract and closed by dragging the air hose to the sites, drilling and blasting with no access provided.

On the Chrome Peak side of the Mine, the AMRB Manager requested a fence across the open area above the road to prevent possible vehicle access to the top of the ridge across the newly backfilled stoping. A steep slope sign was also placed at the top of the hill.

Due to lifting weight limitations by the State helicopter, a change was made on the fill material for the inverted pyramid (cone) placed in Shaft 5. Polyurethane foam was used instead of concrete. The Colorado AML technical specifications were followed for the foam. The foaming process and the cone insertion into the shaft were videoed for future reference (enclosed under separate cover).

Due to the lack of topsoil, the AMRB Manager elected to import 240 yards of compost from Missoula to be placed on top of the backfill material to aid in the revegetation effort.

Donnes Construction completed the project in the allowable contract time using 64 of the 75 days available.

6.2 Site Condition after Completion

Most of the hydroseeding was completed by the time the cone was air-lifted into Shaft 5. The Project Engineer, Construction Inspector and Contractor flew over the completed work after cone placement. The work looked very good on 9/21/1991 (see the construction photographs). However, by the time the fence was put into place the first week of October, much of the revegetation and compost had blown off. The extreme winds (sometimes over 120 mph) in the area played havoc on the reclamation work.

Spectrum Engineering had recommended revegetation be done only on the Benbow Mill site with no revegetation at the Mine site. The draft bid package reflected this. This was changed at the request of the AMRB Manager. I would recommend that a second revegetation effort not be attempted due to the harsh weather conditions which exist on the mountain top.

All other work looked good and followed specifications. Frank Donnes, the Contractor, did an excellent job on a very difficult project.

6.3 Maintenance or Follow-up

The Mill site should be checked next spring for revegetation success. The backfilled subsidence at the Mine site should be checked for settling or collapse.

6.4 Bid Package (Construction) Drawings

The bid package contained two Site Plan sheets covering the work at the Mill and 5 Site Plan sheets for the Mine. These are located in Attachment 5 at the back of the final report. These plans represent the reclamation engineering design (the plans from which the contractors bid the work).

6.5 As-Built Drawings

A set of the bid package (construction) drawings referenced under Section 6.4 were taken and modified to reflect the as-built final reclamation construction. These are located in Attachment 6 right before the photographs and directly behind the bid package construction Site Plans located in Attachment 5.

7. COMMENTS/SUGGESTIONS

On this project the engineering planning went extremely well. There were only two landowners and one mineral claimant. The only problem with consent was the Forest Service's inability to make a firm commitment. It took almost a year to get the reclamation consent form signed. The Forest Service visited the site while reclamation was in process. Their only comment dealt with the Mine. Once they realized that all the Mine work was on private, patented mining claims they seemed pleased.

The final work product accomplished all the proposed objectives except for revegetation of the barren rock backfill on top of Chrome Peak at the Mine site.

The equipment yo-yo process was jointly conceived by the Engineer, Inspector, and Contractor. This proved extremely effective. The Cat D-7 dozer held the pulley and the scraper and dump truck took turns pulling each other up the hill (the unit going down would help pull the upward-bound unit up the steep slopes). Reducing the slopes of the stoping holes and taking off part of a high knob almost eliminated the need to haul the waste dumps to the top of the hill. Instead of using all three dumps as fill material, only half of the upper dump was ultimately used.

8. PHOTOGRAPHS/SLIDES

8.1 Listing

The description of the slides and photographs taken to document the work performed is found at the back of the final report under Attachment 7. Picture numbers 1 through 15 show the equipment used to execute the work. Numbers 16 through 52 show the Benbow Mill site and the waste dump. Numbers 53 through 173 show the work performed at the Benbow Mine site. Each picture is numbered on the front and has a generic label on the back. Following the photo descriptions are the photo location maps and then the photos or slides themselves. The two bound final reports contain photographs and the unbound report contains the slides.

8.2 Photo Location Maps

The location where the photos were taken and their orientation are shown on the plan sheets located in Attachment 7 at the back of the report. The Mill pictures are shown on the Benbow Mill Site Plan Sheets 1 of 2 and 2 of 2. The Mine pictures are shown on the Benbow Mine Site Plan Sheets 1 of 5, 2 of 5 and 3 of 5.

8.3 Photos/Slides

The photographic documentation of the project went through an evolution as the project progressed. The project was started with slides being taken as the practice had been for many years. The AMRB project manager requested half way through the project that print film be shot instead. The new Procedures Manual then came out stating that both prints and slides shall be included in the final report. Therefore, to get copies of both, the slides were reproduced as prints and the prints were turned into slides.

A sequence of photographs documenting the construction activities begins immediately following the photo location maps found in Attachment 7 at the back of the report.

ATTACHMENT 1

BID TABULATIONS

BENBOW MINE
STILLWATER COUNTY, MONTANA

DSL/AMRB 90-004
DATE JUNE 26, 1990

BID TABULATIONS						Donnes Construction Billings, MT		Ajax Contracting Victor, MT		Montgomery Construction Hilger, MT		Stillwater Excavating Columbus, MT	
Item Number	Estimated Quantity	Unit	Description	Unit Price	Total Price								
1.	1	LS	Mobilization			XXX	40,000.00	XXX	21,884.50	XXX	15,000.00	XXX	35,000.00
2.	1	LS	Removal of Wooden Ore Bin			XXX	1,524.00	XXX	7,210.00	XXX	3,000.00	XXX	9,500.00
3.	1	LS	Debris Removal			XXX	4,156.00	XXX	16,325.00	XXX	2,000.00	XXX	4,000.00
4.	1	LS	Clearing and Grubbing			XXX	6,000.00	XXX	9,234.50	XXX	15,000.00	XXX	6,500.00
5.	34	Kgal	Provide Water			10.00	340.00	126.50	4,301.00	20.00	680.00	0.20	6.80
6.	9	Each	Close Mine Openings (2 adits, 7 shafts)			500.00	4,500.00	3,705.00	34,155.00	1,000.00	9,000.00	2,473.33	22,259.97
7.	1	Each	Adit door on Eclipse Adit			2,000.00	2,000.00	9,892.30	9,892.30	3,800.00	3,800.00	2,800.00	2,800.00
8.	1	LS	Secure Shaft - Benbow Mine			XXX	0.00	XXX	0.00	XXX	0.00	XXX	0.00
9.	1	LS	Benbow Mill Foundation Backfill and Dump Removal			XXX	15,000.00	XXX	35,000.00	XXX	17,870.00	XXX	20,000.00
10.	1	LS	Backfill Stoping			XXX	151,704.00	XXX	79,062.50	XXX	191,120.00	XXX	166,710.00
11.	1	LS	Blast down stope edges and hand backfill (Stope holes J & K)			XXX	2,500.00	XXX	11,385.00	XXX	3,000.00	XXX	3,000.00
12.	1	LS	Fabricate and install pyramid-shaped plug for mine shaft 5			XXX	5,232.00	XXX	8,950.00	XXX	3,800.00	XXX	10,000.00
13.	370	Lin. Ft.	Farm Fence - Type F-4M			1.00	370.00	5.00	1,850.00	3.00	1,110.00	8.10	2,997.00
14.	5	Each	Double Panels			100.00	500.00	150.00	750.00	200.00	1,000.00	30.00	150.00
15.	2	Each	Single Panels			100.00	200.00	95.00	190.00	100.00	200.00	20.00	40.00
16.	1.07	Acres	Seed, Fertilize & Mulch			1050.00	1,123.50	885.00	946.95	3,000.00	3,210.00	1,000.00	1,070.00
17.	5.7	Acres	Seed and Fertilize with Tackafier at Benbow Mine			700.00	3,990.00	1,285.00	7,324.50	3,000.00	17,100.00	1,600.00	9,120.00
							239,139.50		248,461.25		277,390.00		293,153.77

BENBOW MINE
STILLWATER COUNTY, MONTANA

DSL/AMRB 90-004
DATE JUNE 26, 1990

BID TABULATIONS						Oltrogge Construction Absarokee, MT		Gro-Pro Laurel, MT					
Item Number	Estimated Quantity	Unit	Description	Unit Price	Total Price								
1.	1	LS	Mobilization			XXX	32,925.00	XXX	42,680.00				
2.	1	LS	Removal of Wooden Ore Bin			XXX	7,500.00	XXX	11,825.00				
3.	1	LS	Debris Removal			XXX	5,000.00	XXX	12,705.00				
4.	1	LS	Clearing and Grubbing			XXX	7,500.00	XXX	3,300.00				
5.	34	Kgal	Provide Water			150.00	5,100.00	948.00	32,230.00				
6.	9	Each	Close Mine Openings (2 adits, 7 shafts)			1,000.00	9,000.00	2,621.66	23,594.94				
7.	1	Each	Adit door on Eclipse Adit			2,000.00	2,000.00	3,135.00	3,135.00				
8.	1	LS	Secure Shaft - Benbow Mine			XXX	0.00	XXX	0.00				
9.	1	LS	Benbow Mill Foundation Backfill and Dump Removal			XXX	28,800.00	XXX	8,560.00				
10.	1	LS	Backfill Stoping			XXX	233,047.00	XXX	220,000.00				
11.	1	LS	Blast down stope edges and hand backfill (Stope holes J & K)			XXX	12,750.00	XXX	7,865.00				
12.	1	LS	Fabricate and install pyramid-shaped plug for mine shaft 5			XXX	5,000.00	XXX	5,830.00				
13.	370	Lin. Ft.	Farm Fence - Type F-4M			5.00	1,850.00	11.12	4,114.40				
14.	5	Each	Double Panels			150.00	750.00	1,072.60	5,363.00				
15.	2	Each	Single Panels			125.00	250.00	770.00	1,540.00				
16.	1.07	Acres	Seed, Fertilize & Mulch			1,500.00	1,605.00	2,200.00	2,354.00				
17.	5.7	Acres	Seed and Fertilize with Tackafier at Benbow Mine			1,500.00	8,550.00	2,070.00	11,804.01				
							361,627.00		396,900.35		0.00		0.00

ATTACHMENT 2

CHANGE ORDERS

SECTION II

2.11 WORK DIRECTIVE CHANGE

(Instructions on Reverse Side)

No. 1

PROJECT: BENBOW

DATE OF ISSUANCE: July 31, 1990

OWNER: Department of State Lands
(Name, AMRB
Address) Helena, MT 59620

CONTRACTOR: Donnes Construction
4002 McGirl Rd.
Billings, MT 59105

OWNER'S PROJECT NO. 3093

ENGINEER: Bill Maehl, Spectrum Eng.

You are directed to proceed promptly with the following change(s):

Description: Adit door on the Eclipse Adit: Change from steel door to 20 feet long, 48 inch diameter culvert with locking door. Build in accordance with Drawing No. 413.01 of Technical Spec. 413.00.

Purpose of Work Directive Change: Safety of construction workers.

Attachments: (list documents supporting change)
Technical Specification 413.00 and Drawing Number 413.01.

If a claim is made that the above change(s) have affected Contract Price or Contract Time, any claim for a Change Order based thereon will involve one of the following methods of determining the effect of the change(s).

Method of determining change in Contract Price:

☐ Time and Materials

☐ Unit Prices

☐ Cost Plus Fixed Fee

☒ Other None

Estimated increase (decrease) in Contract Price: $ 0.00. If the change involves an increase, the estimated amount is not to be exceeded without further authorization.

Method of determining change in Contract Time:

☐ Contractor's Records

☐ Engineer's Records

☒ Other None

Estimated increase (decrease) in Contract Time: 0 days. If the change involves an increase, the estimated time is not to be exceeded without further authorization.

Spectrum Engineering
RECOMMENDED:
By William C Maehl
Engineer

AUTHORIZED:
By Larry Marshall
Owner

REQUESTED:
By Frank Donnes 7-31-90 verbally
Contractor

APPROVED: Chrome Corporation
By Allison Turner 7-31-90 verbally
Lessee

WORK DIRECTIVE CHANGE

INSTRUCTIONS

A. GENERAL INFORMATION

This document was developed for use in situations involving changes in the Work which, if not processed expeditiously, might delay the Project. These changes are often initiated in the field and may affect the Contract Price or the Contract Time. This is not a Change Order, but only a directive to proceed with Work that may be included in a subsequent Change Order.

For supplemental instructions and minor changes not involving a change in the Contract Price or the Contract Time, a Field Order may be issued.

B. COMPLETING THE WORK DIRECTIVE CHANGE

Engineer initiates the form, including a description of the items involved and attachments.

Based on conversations between Engineer and Contractor, Engineer completes the following:

> METHOD OF DETERMINING CHANGE, IF ANY, IN CONTRACT PRICE: Mark the method to be used in determining the final cost of Work involved and the net effect on the Contract Price. If the change involves an increase in the Contract Price and the estimated amount is approached before the additional or changed work is completed, another Work Directive Change must be issued to change the time or Contractor may stop the changed Work when the estimated time is reached. If the Work Directive Change is not likely to change the Contract Price, the space for estimated increase (decreased) should be marked "Not Applicable".
>
> METHOD OF DETERMINING CHANGE, IF ANY, IN CONTRACT TIME: Mark the method to be used in determining the change in Contract Time and the estimated increase or decrease in Contract Time. If the change involves and increase in the Contract Time and the estimated time is approached before additional or changed Work is completed, another Work Directive Change must be issued to change the time or Contractor may stop the changed Work when the estimated time is reached. If the Work Directive Change is not likely to change the Contract Time, the space for estimated increase (decrease) should be marked "Not Applicable".

Once Engineer has completed and signed the form, all copies should be sent to Owner for authorization because Engineer alone does not have authority to authorize changes in Price or time. Once authorized by Owner, a copy should be sent by Engineer to Contractor.

Once the Work covered by this directive is completed for final cost and time determined, Contractor should submit documentation for inclusion in a Change Order.

THIS IS A DIRECTIVE TO PROCEED WITH A CHANGE THAT MAY AFFECT THE CONTRACT PRICE OR THE CONTRACT TIME. A CHANGE ORDER, IF ANY, SHOULD BE CONSIDERED PROMPTLY.

CHANGE ORDER

ORDER NO: 1

PROJECT TITLE: Benbow Project

MONT A/E or DSL-AMRB: 90-004

CONTRACT DATE: July 6, 1990 Agreement Date

OWNER: Department of State Lands, AMR Bureau

CONTRACTOR: Donnes Construction, 4002 McGirl Road, Billings, MT 59105

Change Orders must be accompanied by an itemized cost breakdown. You are hereby requested to comply with the following changes from the Contract Documents. (Show separate costs for materials, labor, equipment, and miscellaneous. Show percent where applicable.)

ITEM NO.	DESCRIPTION OF CHANGES - ESTIMATED QUANTITIES & UNITS	COST OF CHANGES					TOTAL COST
		MAT'LS.	LABOR	EQUIP.	MISC.	TOTAL UNIT COST	
2	See description on back						0.00
7	See description on back						0.00
18	New item - located and closed 2 open adits						3750.00
	TOTAL COST - MATERIALS, LABOR, EQUIPMENT & MISC.						
	OVERHEAD & PROFIT @ ______%						
	GRAND TOTAL - THIS CHANGE ORDER						3,750.00

Original Contract Price	239,139.50
Current Contract Price Adjusted by Previous Change Order	239,139.50
Cost this Change Order (+ or -_)	+3,750.00
New Contract Price including this Change Order	242,889.50

The completion date as set forth in the Contract Documents shall be ([✓ unchanged], increased, decreased) by 0 calendar days.

The date for completion of all work will be September 21, 1990.

Description and Justification for Change:

1. Bid Item Number 2: Removal of Wooden Ore Bin. Chrome Corporation the mine lessee requested that the wooden ore bin be left intact. Decision made by Stu Levit (AMRB) and Bill Maehl (Spectrum Engineering) that the ore bin should be secured by screwing plyboard over all the openings on the wooden ore bin. No cost or time change involved.

2. Bid Item Number 7: Adit Door on Eclipse Adit. Contractor felt that the installation of the steel door placed his workers at risk. Decision made to allow Contractor to install 20 feet long, 48 inch diameter culvert with locking door instead. This was approved verbally by Chrome Corporation and in writing by Work Directive Number 1 dated July 31st, 1990. There was no cost or time change involved.

3. New Item Number 18: Two additional adits were located on the hillside between Little Rocky Creek (Eclipse Adit) and the headframe. Neither of these were accessible by equipment. Contractor will drag compressor hose to these and drill and blast them shut without providing any access or other disturbance. The price agreed upon by Contractor, Stu Levit and Bill Maehl was based on the similar blasting requirements in Bid Item Number 11. Adit 6 was blasted closed and took 5 blasts to close over a 2 1/2 day period with 4 men working. The larger of the 2 adits (Adit A) will cost $2,500.00 and Adit B will cost $1,250.00. No time extension will be necessary.

SURETY CONSENT

The Surety hereby consents to the aforementioned Contract Change Order and agrees that its bond or bonds shall apply and extend to the Contract as thereby modified or amended per this Change Order. The Principal and the Surety further agree that on or after execution of this consent, the penalty of the applicable Performance Bonds or Bonds is hereby increased by $__________ (100% of the Change Order amount) and the penalty of the applicable Labor and Material Bond or Bonds is hereby increased by $__________ (100% of the Change Order amount).

COUNTERSIGNED BY MONTANA RESIDENT AGENT

SURETY

By:

Seal

Recommended by: William C Maehl — Engineer — 8/10/90 Date

Accepted by: __________ Contractor — __________ Date

Approved by: __________ Owner — __________ Date

CHANGE ORDER

ORDER NO: 2

PROJECT TITLE: Benbow Project

MONT A/E or DSL-AMRB: 90-004

CONTRACT DATE: July 6, 1990 Agreement Date

OWNER: Department of State Lands, AMR Bureau

CONTRACTOR: Donnes Construction, 4002 McGirl Road, Billings, MT 59105

Change Orders must be accompanied by an itemized cost breakdown. You are hereby requested to comply with the following changes from the Contract Documents. (Show separate costs for materials, labor, equipment, and miscellaneous. Show percent where applicable.)

ITEM NO.	DESCRIPTION OF CHANGES - ESTIMATED QUANTITIES & UNITS	COST OF CHANGES					TOTAL COST
		MAT'LS.	LABOR	EQUIP.	MISC.	TOTAL UNIT COST	
1	See description on back						($150.00)
9	See description on back						0.00
12	See description on back						0.00
13,14	See description on back						$350.00
16	See description on back						$556.50
17	See description on back						$504.00
19	See description on back and on backup sheet	5437.44	3417.00	6648.50	5000.00		20502.94

TOTAL COST - MATERIALS, LABOR, EQUIPMENT & MISC.	21,763.44
OVERHEAD & PROFIT @ ____%	
GRAND TOTAL - THIS CHANGE ORDER	21,763.44

Original Contract Price	239,139.50
Current Contract Price Adjusted by Previous Change Order	242,889.50
Cost this Change Order (+ or -_)	+ 21,763.44
New Contract Price including this Change Order	264,652.94

The completion date as set forth in the Contract Documents shall be ([✓ unchanged], increased, decreased) by 0 calendar days.

The date for completion of all work will be October 4, 1990.

Description and Justification for Change:

1. Bid Item Number 5: Provide water was less than the plan quantity due to wet conditions. Only 19 Kgal was used with the plan amount being 34 Kgal. This resulted in a cost decrease of $150.00 [(34-19) x $10/Kgal].

2. Bid Item Number 9: The dump at Little Rocky Creek was not removed because of the boggy conditions and material type. It was resloped and covered with borrow material and topsoil. The Project Engineer Bill Maehl field checked the dump prior to this decision and this change was verbally approved by the Project Engineer and Stu Levit (DSL Benbow Project Manager). There was no cost or time change involved.

3. Bid Item Number 12: The pyramid-shaped plug for shaft 5 was changed from cement fill inside the cone to polyurethane foam fill. This change was agreed upon by the Contractor, Stu Levit and Bill Maehl. There was no cost or time change involved.

4. Bid Item Numbers 13 and 14: The linear feet of fence went up because of the request of Stu Levit that the area uphill from the upper waste dump on Chrome Peak be fenced to prevent access over the top of the hill where the backfilling took place. One less double panel was used around the headframe. The cost change is an additional $350.00 [(820-370 feet) x $1.00/foot] - [(5-4 double panels) x $100/each].

5. Bid Item Number 16: Seed, Fertilize and Mulch acreage was increased at the Mill site because of the development of a borrow site to replace the waste dump. It went from 1.07 acres to 1.6 for an increase of 0.53 acres at $1,050.00/acre for an additional $556.50.

6. Bid Item Number 17: Seed and Fertilize with Tackifier acreage was increased with the addition of the top of the waste dump on the Chrome Peak side and the access road going to the top on the Little Rocky Creek side. This increased the acreage from 5.7 to 6.42 acres at $700.00 per acre for an additional $504.00.

7. Item Number 19: This was not a bid item. The addition of compost was requested by Stu Levit prior to seeding. See the backup sheets for a complete description and cost breakdown.

SURETY CONSENT

The Surety hereby consents to the aforementioned Contract Change Order and agrees that its bond or bonds shall apply and extend to the Contract as thereby modified or amended per this Change Order. The Principal and the Surety further agree that on or after execution of this consent, the penalty of the applicable Performance Bonds or Bonds is hereby increased by $_______________ (100% of the Change Order amount) and the penalty of the applicable Labor and Material Bond or Bonds is hereby increased by $_______________ (100% of the Change Order amount).

COUNTERSIGNED BY MONTANA RESIDENT AGENT

SURETY

By: ______________________

Seal

Recommended by: William C Maehl — Engineer — 10/12/90 — Date

Accepted by: ______________________ — Contractor — 10/11/90 — Date

Approved by: ______________________ — Owner — 11/7/90 — Date

CHANGE ORDER NUMBER 2

BACKUP INFORMATION - PAGE 1

PROJECT TITLE: BENBOW PROJECT in Stillwater County

DSL-AMRB: 90-004

CONTRACT DATE: July 6, 1990 Agreement Date

CONTRACTOR: Donnes Construction, Billings, MT 59105

BACKUP INFORMATION FOR ADDITIONAL REQUESTED WORK (ITEM 19)

The Contractor had completed all the backfilling and other work involved and had demobilized his equipment off the mountain to wait for fall seeding. The request was made by Stu Levit, DSL's Benbow Project Manager, after demobilization and before seeding started that the Contractor apply organic compost to all areas to be seeded. Stu Levit ordered the compost from Eco-Compost out of Missoula. A total of 240 yards were ordered by Stu Levit at an agreed upon price of $5,310.00. Eco-Compost was to bill Donnes Construction with this cost added to the final project price. Due to the steep terrain, the compost could not be delivered directly to the areas where it was to be applied. It was stockpiled at the Mill site and the headframe on top of the mountain. The job could not be bid ahead due to its unique nature. It was agreed upon by Stu Levit, Bill Maehl (Project Engineer) and Frank Donnes to go on an rental basis for the equipment, actual labor rates, and the material costs. An estimate of $15,000 (equipment and labor) for compost spreading was given to Stu Levit and approved prior to remobilizing equipment and beginning work. The cost breakdown for materials, labor, equipment and mobilization is provided below:

MATERIAL:

Compost from Eco-Compost at their invoice	$5,310.00	
1% Contractor tax to make Contractor whole	53.10	
1.4% Bond Premium to make Contractor whole	74.34	$5,437.44

LABOR:

9/17		
Gary Davis	$24.12/hr x 8 hours	$ 192.96
	$32.84/hr x 3 hours (OT)	98.52
Ken Winkler	$24.75/hr x 8 hours	198.00
	$33.75/hr x 3 hours (OT)	101.25
Frank Donnes	$24.75/hr x 8 hours	198.00
	$33.75/hr x 3 hours (OT)	101.25
		889.98

CHANGE ORDER NUMBER 2

BACKUP INFORMATION - PAGE 2

9/18			
Gary Davis	$24.12/hr x 8 hours	$ 192.96	
	$32.84/hr x 2 hours (OT)	65.68	
Ken Winkler	$24.75/hr x 8 hours	198.00	
	$33.75/hr x 2 hours (OT)	67.50	
Frank Donnes	$24.75/hr x 8 hours	198.00	
	$33.75/hr x 2 hours (OT)	67.50	
Fuel Truck Operator	$23.76/hr x 8 hours	190.08	
		979.72	
9/19			
Gary Davis	$24.12/hr x 8 hours	$ 192.96	
	$32.84/hr x 3 hours (OT)	98.52	
Ken Winkler	$24.75/hr x 8 hours	198.00	
	$33.75/hr x 3 hours (OT)	101.25	
Frank Donnes	$24.75/hr x 8 hours	198.00	
	$33.75/hr x 3 hours (OT)	101.25	
		889.98	
9/22			
Gary Davis	$24.12/hr x 8 hours	$ 192.96	
	$32.84/hr x 4 hours (OT)	131.36	
Frank Donnes	$24.75/hr x 8 hours	198.00	
	$33.75/hr x 4 hours (OT)	135.00	
		657.32	$3,417.00

The labor rates are the wage rates per the State of Montana prevailing wage rates plus the Contractor out-of-pocket (Social Security, Workers Comp., State and Federal Unemployment). This adds 27.973% to the regular time and 23.536% to the overtime. The calculations showing the Contractors actual cost for his people is shown below. No profit was given on the labor.

Gary Davis	$18.85	regular time	x 1.27973	= $24.12/hr
	$26.58	over time	x 1.23536	= $32.84/hr
Frank Donnes/	$19.34	regular time	x 1.27973	= $24.75/hr
Ken Winkler	$27.32	over time	x 1.23536	= $33.75/hr
Fuel Trk Opr.	$18.57	regular time	x 1.27973	= $23.76/hr

CHANGE ORDER NUMBER 2

BACKUP INFORMATION - PAGE 3

CONTRACTOR EQUIPMENT (see footnote):

		hours x $/hr	
9/17			
John Deere 750B dozer	daily owning	$385/day	$ 385.00
	operating	(4 x $10.85)	43.40
International 530 Loader	daily owning	$305/day	305.00
	operating	(4 x $15.25)	61.00
International 60 Loader	daily owning	$235/day	235.00
	operating	(2 x $10.80)	21.60
6x4 12 Yard Dump Truck	daily owning	$195/day	195.00
	operating	(5 x $15.50)	77.50
4x4 3/4 Ton Pickup	daily owning	$45/day	45.00
	hourly operating	(9 x $ 5.60)	50.40
			$1,418.90
9/18			
John Deere 750B dozer	daily owning	$385/day	$ 385.00
	operating	(8 x $10.85)	86.80
International 530 Loader	daily owning	$305/day	305.00
	operating	(8 x $15.25)	122.00
International 60 Loader	daily owning	$235/day	235.00
	operating	(4 x $10.80)	43.20
6x4 12 Yard Dump Truck	daily owning	$195/day	195.00
	operating	(8 x $15.50)	124.00
4x4 3/4 Ton Pickup	daily owning	$45/day	45.00
	hourly operating	(10 x $ 5.60)	56.00
Blower	daily owning/opr	$50/day	50.00
Fuel Pickup	daily owning	$45/day	45.00
	hourly operating	(8 x $ 5.60)	44.80
			1,736.80
9/19			
John Deere 750B dozer	daily owning	$385/day	$ 385.00
	operating	(6 x $10.85)	65.10
International 530 Loader	daily owning	$305/day	305.00
	operating	(6 x $15.25)	91.50
International 60 Loader	daily owning	$235/day	235.00
	operating	(6 x $10.80)	64.80
6x4 12 Yard Dump Truck	daily owning	$195/day	195.00
	operating	(6 x $15.50)	93.00
4x4 3/4 Ton Pickup	daily owning	$45/day	45.00
	hourly operating	(10 x $ 5.60)	56.00
			1,535.40

CHANGE ORDER NUMBER 2

BACKUP INFORMATION - PAGE 4

9/22				
John Deere 750B dozer	daily owning	$385/day	$ 385.00	
	operating	(6 x $10.85)	65.10	
International 530 Loader	daily owning	$305/day	305.00	
	operating	(4 x $15.25)	61.00	
International 60 Loader	daily owning	$235/day	235.00	
	operating	(2 x $10.80)	21.60	
6x4 12 Yard Dump Truck	daily owning	$195/day	195.00	
	operating	(5 x $15.50)	77.50	
4x4 3/4 Ton Pickup	daily owning	$45/day	45.00	
	hourly operating	(12 x $ 5.60)	67.20	
			1,457.40	$6,148.50

EQUIPMENT RENTAL:

Fertilizer Truck Rental	$ 500.00

MOBILIZATION:	$5,000.00

The equipment listed above had to be remobilized from Billings to the job site. This took 2 days for mobilization/demobilization hauling 3 loads per day. In addition, the Contractor met the fertilizer truck in Columbus, got a pickup load of compost and took it back to Billings for application testing. Another 2 days were spent trying the lime blower and a rented fertilizer truck to determine the best method to apply the compost. Only enough was ordered to apply it 1/4 inch thick so the application procedure had to be worked out in advance. There was also about 8 hours where the hydroseeder was delayed and had to wait due to the slow application rate of the compost.

TOTALS:

COMPOST	$ 5,437.44
LABOR	3,417.00
CONTRACTOR EQUIPMENT	6,148.50
EQUIPMENT RENTAL	500.00
MOBILIZATION	5,000.00
TOTAL FOR REQUESTED ADDITIONAL WORK	$20,502.94

FOOTNOTE:

The equipment rate was the lessor of the rate bid in the cost proposal or the day rate from the 1990 Rental Rate Blue Book.

ATTACHMENT 3

PAYMENT REQUESTS

PAYMENT REQUEST NO. 1

FROM 7/9/1990 TO 8/9/1990

PROJECT TITLE: Benbow Project

LOCATION: Stillwater County MONT A/E or DSL-AMRB: 90-004

NAME OF CONTRACTOR: Donnes Construction

ADDRESS: 4002 McGirl Road, Billings, Montana 59105

CHANGE ORDERS		
No.	Description	Amount
1	Additional 2 adits	$3,750.00
	found and closed by	
	blasting	
Total Change Orders		3,750.00

CONTRACT STATUS			
Total Amount	Completed Amount	Uncompleted Amount	Percent Complete
242889.50			
	193984.95	48904.55	80%

CONTRACT TO DATE INCLUDING CHANGE ORDERS $ 242889.50

* For use only when securities are on deposit in lieu of retainage.

TOTAL RETAINAGE $ ______

SECURITIES ON DEPOSIT $ ______

ADJUSTED RETAINAGE $ ______

COMPLETED TO DATE	$ 193984.95
PLUS MATERIALS ON SITE	$ 0.00
TOTAL COMPLETED TO DATE	$ 193984.95
LESS RETAINAGE	$ 19398.50
TOTAL AMOUNT EARNED TO DATE	$ 174586.45
LESS PREVIOUS PAYMENTS	$ 0.00
AMOUNT DUE THIS PAYMENT	$ 174586.45
LESS 1% TAX	$ 1745.86
TOTAL DUE CONTRACT	$ 172840.59

I certify that this claim is correct and just in all respects and that payment or credit has not been received.

______
Contractor

By ______

Date ______

APPROVED BY:

______
Owner

By ______

Date ______

RECOMMENDED BY:

William C Maehl
Engineer

By ______

Date ______

ITEMIZATION OF QUANTITIES AND COSTS						
Item	Description	Estimated Plan Quantity	Unit Price Bid	Units of Work Completed To Date	Total Cost of Complete Work	Percent Complete
1.	Mobilization	1 LS	40,000	1 LS	23,913.95	100
3.	Debris Removal	1 LS	4,156	3/4	3,117	75
4.	Clearing and Grubbing	1 LS	6,000	3/4	4,500	75
6.	Close Mine Openings	9 Each	500	9	4,500	100
10.	Backfill Stoping	1 LS	151,704	1	151,704	100
11.	Blast down stope edges	1 LS	2,500	1	2,500	100
18.	Change Order 1					
	Adit A	0	2,500	1	2,500	100
	Adit B	0	1,250	1	1,250	100
	Note: Mobilization is 10% of original contract price bid					
TOTAL					193,984.95	

PAYMENT REQUEST NO. 2 - FINAL

FROM 8/9/90 TO 10/5/90

PROJECT TITLE: Benbow Project

LOCATION: Stillwater County MONT A/E or DSL-AMRB: 90-004

NAME OF CONTRACTOR: Donnes Construction

ADDRESS: 4002 McGirl Rd., Billings, MT 59105

CHANGE ORDERS		
No.	Description	Amount
1	Two new adits - Closed	$3,750.00
2	Final quantity adjustment and extra work	$21,763.44
Total Change Orders		$25,513.44

CONTRACT STATUS			
Total Amount	Completed Amount	Uncompleted Amount	Percent Complete
$264,652.94		0	100
	$264,652.94		

CONTRACT TO DATE INCLUDING CHANGE ORDERS $ 264,652.94

* For use only when securities are on deposit in lieu of retainage.

TOTAL RETAINAGE $ ________

SECURITIES ON DEPOSIT $ ________

ADJUSTED RETAINAGE $ ________

COMPLETED TO DATE	$ 264,652.94
PLUS MATERIALS ON SITE	$ 0.00
TOTAL COMPLETED TO DATE	$ 264,652.94
LESS RETAINAGE	$ 0.00
TOTAL AMOUNT EARNED TO DATE	$ 264,652.94
LESS PREVIOUS PAYMENTS	$ 174,586.45
AMOUNT DUE THIS PAYMENT	$ 90,066.49
LESS 1% TAX	$ 900.66
TOTAL DUE CONTRACT	$ 89,165.83

I certify that this claim is correct and just in all respects and that payment or credit has not been received.

Frank Donnes
Contractor

By Frank Donnes

Date October 11, 1990

RECOMMENDED BY:

William C Maehl
Engineer

By William C. Maehl

Date October 11, 1990

APPROVED BY:

lf 10/19

AMRB DSL
Owner

By Larry Marshall

Date 11/7/90

ITEMIZATION OF QUANTITIES AND COSTS

Item	Description	Estimated Plan Quantity	Unit Price Bid	Units of Work Completed To Date	Total Cost of Completed Work	Percent Complete
1	Mobilization	1 LS	40,000.00	1 LS	40,000.00	100
2	Boarding up Wooden Ore Bin	1 LS	1,524.00	1 LS	1,524.00	100
3	Debris Removal	1 LS	4,156.00	1 LS	4,156.00	100
4	Clearing and Grubbing	1 LS	6,000.00	1 LS	6,000.00	100
5	Provide Water	34 Kgal	10.00	19 Kgal	190.00	100
6	Close Mine Openings	9 Ea	500.00	9 Ea	4,500.00	100
7	Adit Door on Eclipse Adit	1 Ea	2,000.00	1 Ea	2,000.00	100
8	Secure Shaft	0 Ea	0.00	0 Ea	0.00	100
9	Benbow Mill Foundation Backfill and Remove Dump	1 LS	15,000.00	1 LS	15,000.00	100
10	Backfill Stoping	1 LS	151,704.00	1 LS	151,704.00	100
11	Blast Down Stope Edges	1 LS	2,500.00	1 LS	2,500.00	100
12	Fabricate/Install Plug in Shaft 5	[illegible] Ea	5,232.00	1 LS	5,232.00	100
1[illegible]	Farm Fence Type F-4M	370 FT	1.00	820 FT	820.00	100
14	Double Panels	9 Ea	400.00	4 Ea	400.00	100
15	Single Panels	[illegible] Ea	100.00	2 Ea	200.00	100
16	Seed, Fertilize, Mulch at Mill	1.07 Ac	1,050.00	1.60 Ac	1,680.00	100
17	Seed and Fertilize with Tackifier at Mine	5.7 Ac	700.00	6.42 Ac	4,494.00	100
16	Change Order 1					
	Adit A	0 Ea	2,500.00	1 Ea	2,500.00	100
	Adit B	0 Ea	1,250.00	1 Ea	1,250.00	100
19	Change Order 2					
	Buy and apply compost per Stu Levit request	0 Ea	See backup	1 Unit	~~21,763.44~~ 20502.94	100
TOTAL					264,652.94	100

ATTACHMENT 4

ANALYSIS OF CONSULTANT COSTS INCURRED

BENBOW PROJECT FINAL REPORT

ANALYSIS OF CONSULTANT COSTS INCURRED
FOR THE MONTANA DEPARTMENT OF STATE LANDS
ABANDONED MINE RECLAMATION BUREAU
AMR PROJECT NUMBER: DSL-AMRB 90-004
BENBOW PROJECT

DATE OF PREPARATION: JANUARY 29TH, 1991

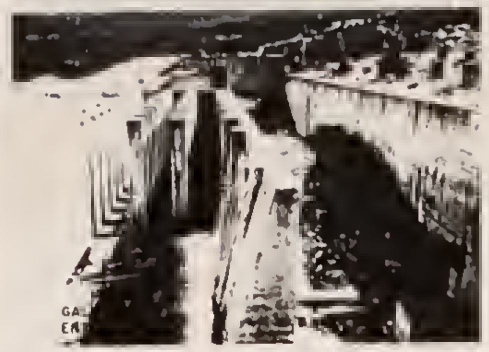
ENGINEERING SERVICE	AMOUNT
DESIGN ENGINEERING:	
1988 CONTRACT	$18,831.72
1990 CONTRACT	$ 416.50
SUBTOTAL DESIGN ENGINEERING COST:	$19,248.22
CONSTRUCTION ENGINEERING AND PROJECT ADMINISTRATION COST:	
1990 CONTRACT	26,590.63
SUBTOTAL CONSTRUCTION ENGINEERING COST:	$26,590.63
PROJECT ENGINEERING COST:	$45,838.85
CONSTRUCTION COST:	$264,652.94

PERCENTAGE ENGINEERING FEES TO CONSTRUCTION COST:	
DESIGN ENGINEERING/CONSTRUCTION COST	7.27%
CONSTRUCTION ENGINEERING/CONSTRUCTION COST	10.05%
TOTAL ENGINEERING COST/CONSTRUCTION COST	17.32%

REMARKS: Services provided included landowner contact and consent, budget preparation, basic engineering and reclamation design, bid document preparation, construction staking, contract administration, quantity accounting, full time construction/reclamation inspection and final report preparation and project close-out.

ATTACHMENT 5

PRE-CONSTRUCTION (BID PACKAGE) DRAWINGS



① PICTURE I SHOWS THE ENTRANCE TO ADIT CONVEYOR GALLERY 3 AND THE CONCRETE PILLARS.

② PICTURE 2 IS A VIEW OF A CONCRETE WALL WITH A 20 FOOT VERTICAL DROP.

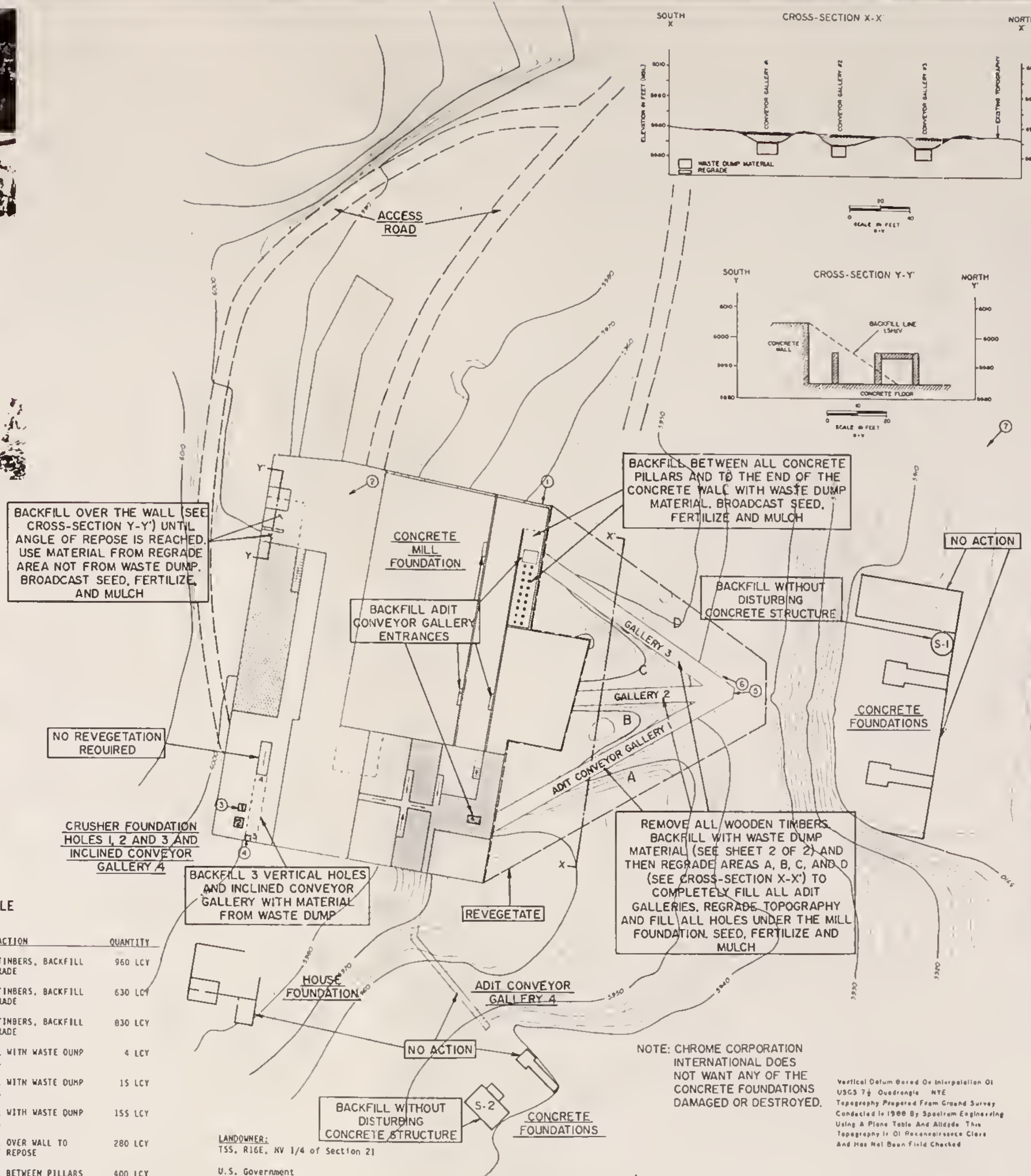
③ PICTURE 3 SHOWS HOLE I OF THE CRUSHER FOUNDATION.

④ PICTURE 4 IS LOOKING DOWN HOLE 3 IN THE CRUSHER CONVEYOR GALLERY

⑤ PICTURE 5 SHOWS ADIT CONVEYOR GALLERIES I AND 2

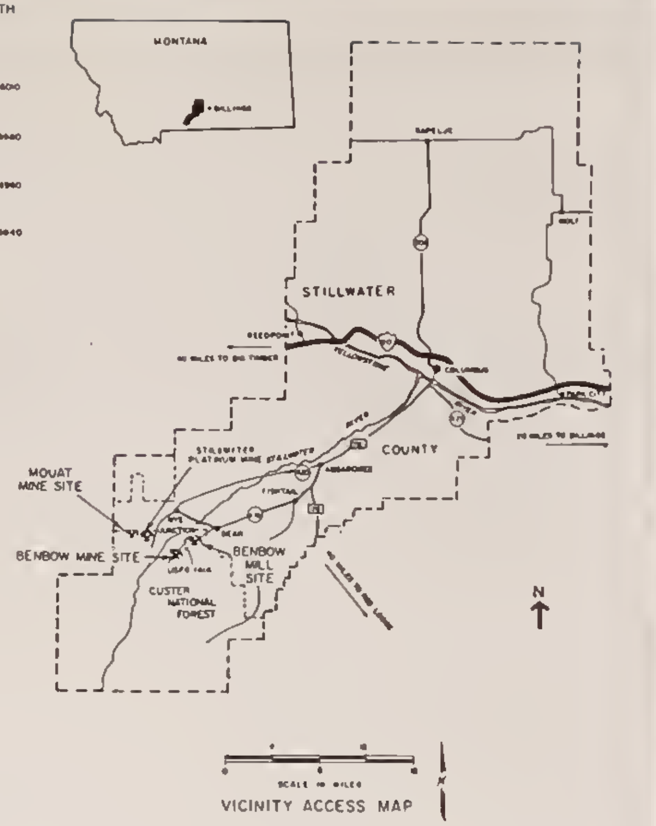
⑥ PICTURE 6 SHOWS ADIT CONVEYOR GALLERY 3

⑦ PICTURE 7 IS A HELICOPTER VIEW OF THE MILL COMPLEX.

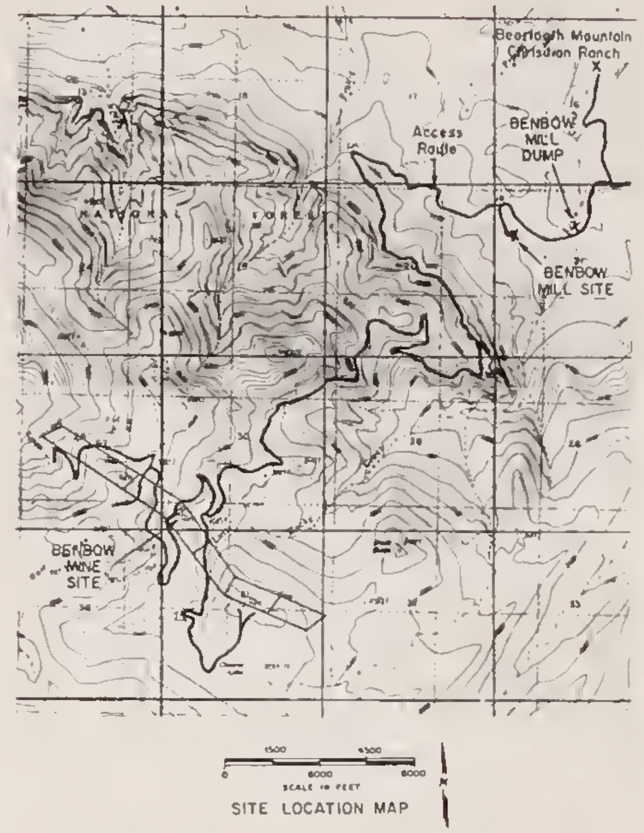

CROSS-SECTION X-X'
SOUTH X
NORTH X'
ELEVATION IN FEET (MSL)
CONVEYOR GALLERY #1
CONVEYOR GALLERY #2
CONVEYOR GALLERY #3
EXISTING TOPOGRAPHY
WASTE DUMP MATERIAL
REGRADE
SCALE IN FEET
CROSS-SECTION Y-Y'
SOUTH Y
NORTH Y'
CONCRETE WALL
BACKFILL LINE 1.5H:1V
CONCRETE FLOOR
SCALE IN FEET
ACCESS ROAD
BACKFILL OVER THE WALL (SEE CROSS-SECTION Y-Y') UNTIL ANGLE OF REPOSE IS REACHED. USE MATERIAL FROM REGRADE AREA NOT FROM WASTE DUMP. BROADCAST SEED, FERTILIZE, AND MULCH
CONCRETE MILL FOUNDATION
BACKFILL ADIT CONVEYOR GALLERY ENTRANCES
BACKFILL BETWEEN ALL CONCRETE PILLARS AND TO THE END OF THE CONCRETE WALL WITH WASTE DUMP MATERIAL. BROADCAST SEED, FERTILIZE AND MULCH
NO ACTION
BACKFILL WITHOUT DISTURBING CONCRETE STRUCTURE
S-1
CONCRETE FOUNDATIONS
GALLERY 3
GALLERY 2
ADIT CONVEYOR GALLERY 1
A
B
C
D
X
X'
Y
Y'
NO REVEGETATION REQUIRED
CRUSHER FOUNDATION HOLES I, 2 AND 3 AND INCLINED CONVEYOR GALLERY 4
BACKFILL 3 VERTICAL HOLES AND INCLINED CONVEYOR GALLERY WITH MATERIAL FROM WASTE DUMP
REVEGETATE
REMOVE ALL WOODEN TIMBERS. BACKFILL WITH WASTE DUMP MATERIAL (SEE SHEET 2 OF 2) AND THEN REGRADE AREAS A, B, C, AND D (SEE CROSS-SECTION X-X') TO COMPLETELY FILL ALL ADIT GALLERIES. REGRADE TOPOGRAPHY AND FILL ALL HOLES UNDER THE MILL FOUNDATION. SEED, FERTILIZE AND MULCH
HOUSE FOUNDATION
ADIT CONVEYOR GALLERY 4
NO ACTION
BACKFILL WITHOUT DISTURBING CONCRETE STRUCTURE
S-2
CONCRETE FOUNDATIONS
5950
5940
5930
5920
SCALE IN FEET
N

NOTE: CHROME CORPORATION INTERNATIONAL DOES NOT WANT ANY OF THE CONCRETE FOUNDATIONS DAMAGED OR DESTROYED.

Vertical Datum Based On Interpolation Of USGS 7½ Quadrangle NYE
Topography Prepared From Ground Survey Conducted In 1988 By Spectrum Engineering Using A Plane Table And Alidade. This Topography Is Of Reconnaissance Class And Has Not Been Field Checked



VICINITY ACCESS MAP



SITE LOCATION MAP

WORK SUMMARY TABLE

ITEM	DESCRIPTION	ACTION	QUANTITY
ADIT CONVEYOR GALLERY 1	10 FEET ACROSS BY 165 FEET LONG, UP TO 12 FT DEEP	REMOVE TIMBERS, BACKFILL AND REGRADE	960 LCY
ADIT CONVEYOR GALLERY 2	10 FEET ACROSS BY 107 FEET LONG, UP TO 12 FT DEEP	REMOVE TIMBERS, BACKFILL AND REGRADE	630 LCY
ADIT CONVEYOR GALLERY 3	10 FEET ACROSS BY 142 FEET LONG, UP TO 12 FT DEEP	REMOVE TIMBERS, BACKFILL AND REGRADE	830 LCY
CRUSHER FOUNDATION HOLE 1	4.1 FEET BY 4.1 FEET BY 6 FEET DEEP	BACKFILL WITH WASTE DUMP MATERIAL	4 LCY
CRUSHER FOUNDATION HOLE 2	5.6 FEET BY 7.3 FEET BY 10 FEET DEEP	BACKFILL WITH WASTE DUMP MATERIAL	15 LCY
CRUSHER FOUNDATION HOLE 3 & 4	INCLINED 66.9 FT BY 6.2 FEET WIDE BY 20 FT DEEP	BACKFILL WITH WASTE DUMP MATERIAL	155 LCY
VERTICAL WALL	20 FT HIGH BY 30 FEET OUT BY 25 FEET ACROSS	BACKFILL OVER WALL TO ANGLE OF REPOSE	280 LCY
CONCRETE PILLARS	12 FT HIGH BY 15 FEET ACROSS BY 60 FEET OUT	BACKFILL BETWEEN PILLARS AND TO THE END OF WALL	400 LCY
CONCRETE STRUCTURE S-1	14 FT HIGH BY 15 FEET DIA.	BACKFILL WITH MATERIAL FROM DIRT MOUNDS A OR D	80 LCY
CONCRETE STRUCTURE S-2	12.5 FT HIGH BY 15 FEET WIDE BY 25 FEET LONG	BACKFILL WITH MATERIAL FROM DIRT MOUNDS A OR D	170 LCY
ADIT ENTRANCES	WITHIN MILL FOUNDATION	BACKFILL WITH WASTE DUMP MATERIAL	50 LCY
WATER	ALL BACKFILL AREAS HAUL ROADS & WORK AREAS	FOR COMPACTION DUST SUPPRESSION	10000 GALLONS 2000 GALLONS 12000 GALLONS

REVEGETATION OF ENTIRE DISTURBANCE AREA - 0.52 ACRES	SEED APPLICATION	FERTILIZER APPLICATION	MULCH APPLICATION
	(23 LBS PLS/ACRE) 13 LBS PLS	(92.5 LBS NUTRIENT/ACRE) 48.1 LBS	(3000 LBS/ACRE) 1560 LBS

WORK DESCRIPTION

- REMOVE ALL TIMBERS FROM ADIT CONVEYOR GALLERIES 1, 2, AND 3. BACKFILL THE 3 CONVEYOR GALLERIES WITH FILL MATERIAL TO COME FROM WASTE DUMP LOCATED 4100 FEET TO THE NORTH BY ROAD (MILL AT 6000 FT ELEV. & WASTE DUMP AT 5800 FT ELEV.). REGRADE THE MOUNDS OF DIRT LABELED A, B, C, AND D ORIGINALLY TAKEN FROM THE CONVEYOR GALLERIES. THE REGRADE PROCEDURE IS SHOWN ON CROSS-SECTION X-X'.
- BACKFILL CRUSHER FOUNDATION HOLES LABELED 1, 2, AND 3 AND CONCRETE-LINED INCLINED CONVEYOR GALLERY (LABELED 4). BACKFILL BETWEEN CONCRETE PILLARS AND THE 3 ADIT CONVEYOR ENTRANCES. ALSO BACKFILL CONCRETE STRUCTURES S-1 AND S-2. FILL MATERIAL TO COME FROM THE WASTE DUMP AND FROM THE DIRT MOUNDS A OR D.
- BACKFILL AGAINST VERTICAL CONCRETE WALL WITH MATERIAL FROM THE MOUNDS OF DIRT LABELED A, B, C, AND D.
- DISPOSE OF ALL TIMBERS (AND OTHER DEBRIS) REMOVED FROM THE ADIT CONVEYOR GALLERIES AND MILL FOUNDATION BY BURNING OR HAULING TO AN APPROVED DISPOSAL SITE.
- PROVIDE WATER FOR BACKFILL COMPACTION, ROAD & WORK AREA DUST SUPPRESSION, AND FOR ANY BURNING.
- REVEGETATE (FERTILIZE, SEED AND MULCH) ALL DISTURBED AREAS.
- ADDITIONAL WORK DESCRIPTION DETAILS CAN BE FOUND IN THE SPECIAL PROVISIONS.

LANDOWNER:
T5S, R16E, NW 1/4 of Section 21

U.S. Government
Custer National Forest
U.S. Forest Service
c/o George Weldon
Box 3420, Route 2
Red Lodge, MT 59068
Phone: 406/446-2103

MINERAL CLAIMANT:
Unpatented Lode Claims
Named Mate 1 through 21
Chrome Corp. International
c/o John Sellar
Vice-President-Operations
12640 W. Cedar Drive
Suite B
Lakewood, CO 80228
Phone: 303/969-8903

ADDITIONAL INFORMATION PERTAINING TO THIS SITE MAY EXIST IN THE DEPARTMENT OF STATE LANDS' FILES OR AT SPECTRUM ENGINEERING'S OFFICE. THIS MATERIAL IS AVAILABLE FOR REVIEW BY ANY INTERESTED PARTY

NOTICE

AN ABANDONED MINE UNDERLIES THIS SITE. MANY POTENTIAL HAZARDS EXIST. THE EXTENT OF THESE HAZARDS IS NOT FULLY KNOWN. CONTRACTORS AND OTHER PERSONS WORKING AT THE SITE SHALL APPRISE THEMSELVES OF THE CONDITIONS AND TAKE WHATEVER STEPS ARE DEEMED NECESSARY TO INSURE SAFETY WHILE PERFORMING THEIR DUTIES.

SCALE IN FEET
CONTOUR INTERVAL - 2 FT

SITE PLAN AND GENERAL LAYOUT

BENBOW MILL

SECTION 21, T5S, R16E
STILLWATER COUNTY, MONTANA

STATE OF MONTANA
DEPARTMENT OF STATE LANDS
ABANDONED MINE RECLAMATION BUREAU, RECLAMATION DIVISION

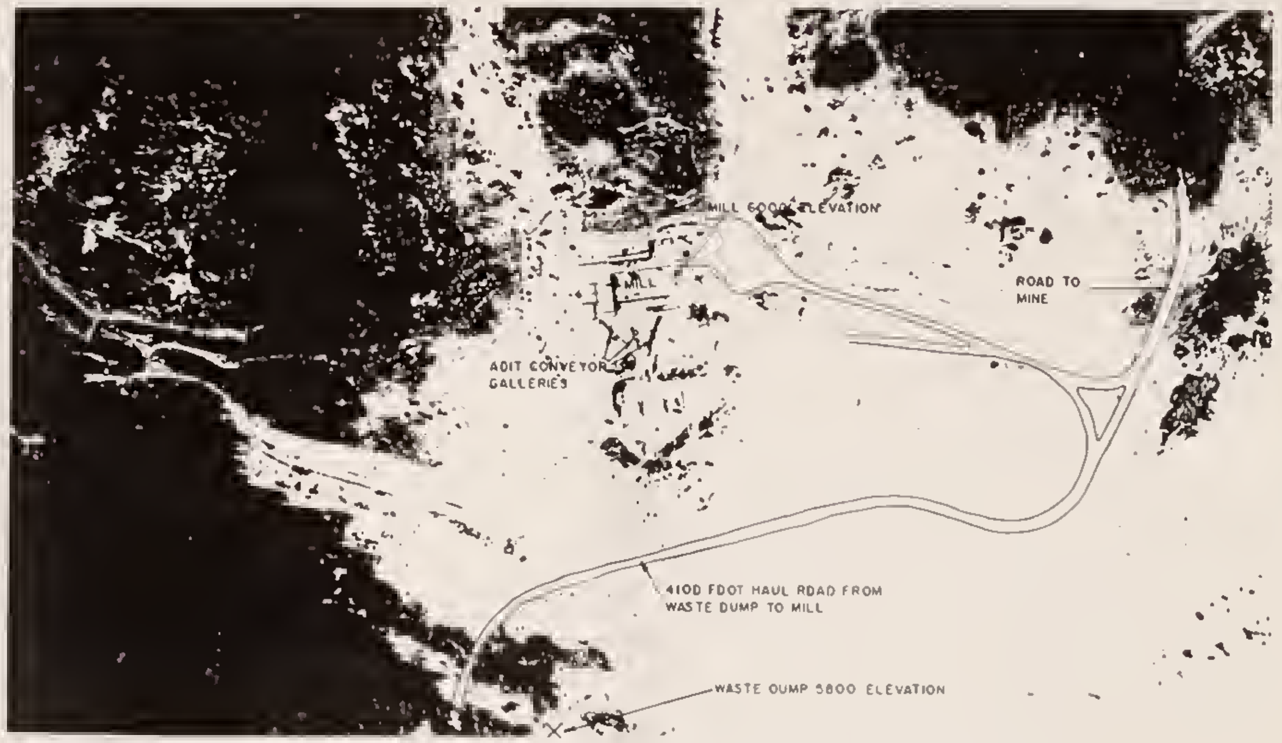
DATE: February 1989		
DRAWN BY: LNR		
CHECKED BY:		
APPROVED BY:		
REVISIONS NO.	DATE	BY
1	4-30-90	LNR

SPECTRUM ENGINEERING
Mining and Civil Engineers
3302 4th AVE NORTH
BILLINGS, MONTANA

SHEET NO 1 of 2

① PICTURE 1 SHOWS THE MILL WASTE DUMP WITH LITTLE ROCKY CREEK RUNNING THROUGH IT.

② PICTURE 2 SHOWS SOME OF THE DEBRIS AT THE TOE OF THE DUMP IN LITTLE ROCKY CREEK.


MILL 6000 ELEVATION
MILL
ROAD TO MINE
ADIT CONVEYOR GALLERIES
4100 FOOT HAUL ROAD FROM WASTE DUMP TO MILL
WASTE DUMP 5800 ELEVATION

③ PICTURE 3 IS AN AERIAL VIEW OF THE EDGE OF THE WASTE DUMP, ROAD FROM THE DUMP TO THE MILL, AND THE CONCRETE MILL FOUNDATION

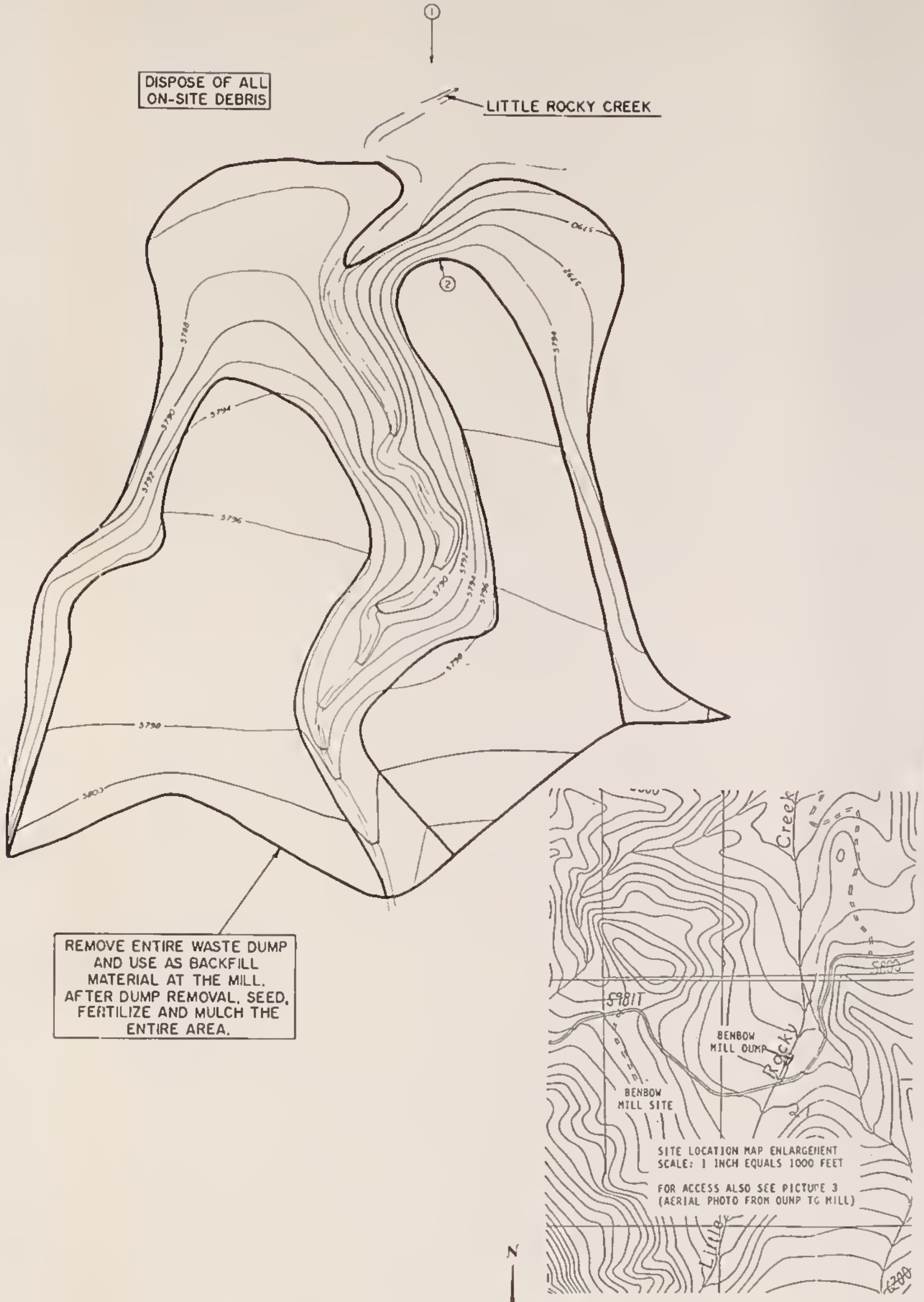
WORK DESCRIPTION

- REMOVE ENTIRE WASTE DUMP AND HAUL TO MILL FOUNDATION FOR BURIAL IN THE LOCATIONS NOTED ON SHEET 1 OF 2 (MILL AT 6000 FT ELEVATION AND WASTE DUMP AT 5800 FT ELEVATION - 200 FT UPHILL HAUL OVER A DISTANCE OF 4100 FEET). REGRADE THE AREA AFTER ORIGINAL TOPOGRAPHY IS ACHIEVED.

  DISTURBANCE TO LITTLE ROCKY CREEK SHOULD BE MINIMIZED. THE DUMP MATERIAL SHOULD BE PULLED BACK FROM BOTH EDGES OF THE CREEK WITH A BACKHOE. NO EQUIPMENT SHALL OPERATE WITHIN THE CREEK BOTTOM.
- DISPOSE OF ALL DEBRIS ON AND AROUND THE DUMP PRIOR TO DUMP REMOVAL AND REVEGETATION. ALL WOOD DEBRIS CAN BE BURNED OR HAULED TO AN APPROVED DISPOSAL SITE.
- PROVIDE WATER FOR ROAD & WORK AREA DUST SUPPRESSION.
- REVEGETATE (FERTILIZE, SEED AND MULCH) ALL DISTURBED AREAS.
- ADDITIONAL WORK DESCRIPTION DETAILS CAN BE FOUND IN THE SPECIAL PROVISIONS.

WORK SUMMARY TABLE

ITEM	DESCRIPTION	ACTION	QUANTITY
WASTE DUMP	LOCATED 4100 FEET FROM MILL ON BOTH SIDES OF LITTLE ROCKY CREEK COVERING AN AREA OF 150 FEET BY 180 FEET	REMOVE AND USE AS BACKFILL MATERIAL AT THE MILL FOUNDATION	3000 LCY
WATER	HAUL ROADS & WORK AREAS	DUST SUPPRESSION	2000 GALLONS
REVEGETATION OF ENTIRE DISTURBANCE AREA - 0.55 ACRES	SEED APPLICATION (23 LBS PLS/ACRE) 12.7 LBS PLS	FERTILIZER APPLICATION (92.5 LBS NUTRIENT/ACRE) 50.9 LBS	MULCH APPLICATION (3000 LBS/ACRE) 1650 LBS


①
DISPOSE OF ALL ON-SITE DEBRIS
LITTLE ROCKY CREEK
②
REMOVE ENTIRE WASTE DUMP AND USE AS BACKFILL MATERIAL AT THE MILL. AFTER DUMP REMOVAL, SEED, FERTILIZE AND MULCH THE ENTIRE AREA.
Creek
5981T
5800
BENBOW MILL DUMP
Rocky
BENBOW MILL SITE
Little
6200

SITE LOCATION MAP ENLARGEMENT
SCALE: 1 INCH EQUALS 1000 FEET

FOR ACCESS ALSO SEE PICTURE 3
(AERIAL PHOTO FROM DUMP TO MILL)

LEGEND

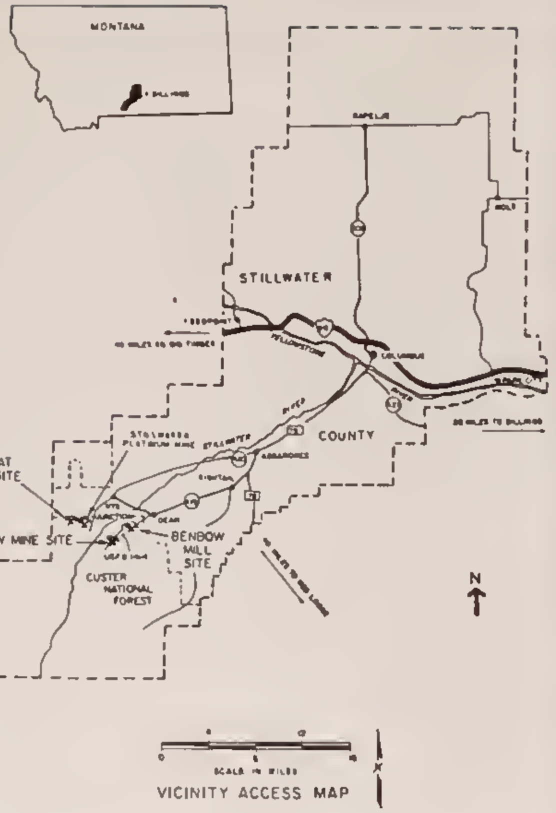
—5800—	*CONTOUR*
⬭	*WASTE DUMP*
— —	*DRAINAGE*
①→	*PICTURE NUMBER AND ORIENTATION*
SP 1	*SUBSIDENCE PIT (SP) NUMBER (& DEPTH)*
—<	*OPEN ADIT*

N

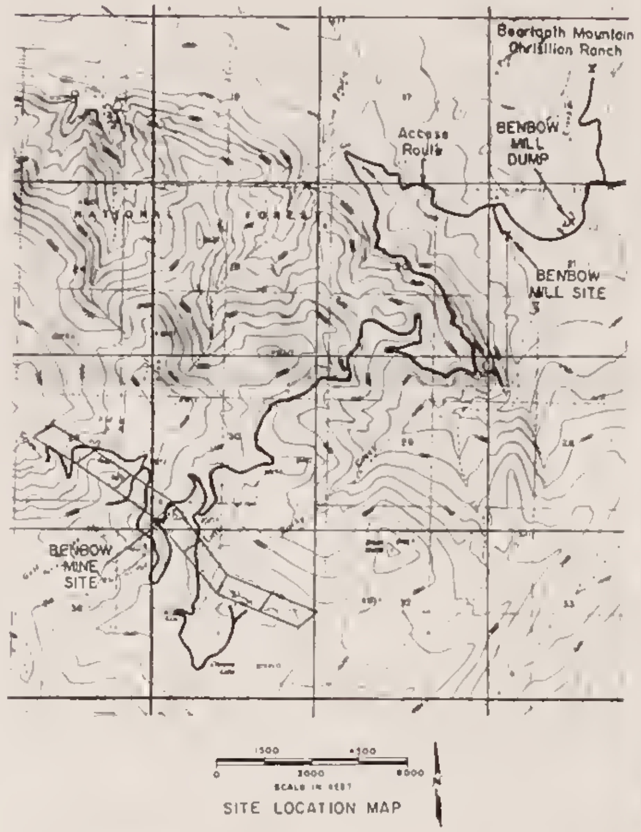
SCALE IN FEET
CONTOUR INTERVAL - 2 FT

Vertical Datum Based On Interpolation Of USGS 7½' Quadrangle: NYE
Topography Prepared From Ground Survey Conducted In 1988 By Spectrum Engineering Using A Plane Table And Alidade. This Topography Is Of Reconnaissance Class And Has Not Been Field Checked

ADDITIONAL INFORMATION PERTAINING TO THIS SITE MAY EXIST IN THE DEPARTMENT OF STATE LANDS' FILES OR AT SPECTRUM ENGINEERING'S OFFICE. THIS MATERIAL IS AVAILABLE FOR REVIEW BY ANY INTERESTED PARTY



VICINITY ACCESS MAP



SITE LOCATION MAP

SITE PLAN AND GENERAL LAYOUT

BENBOW MILL

SECTION 21, T5S, R16E
STILLWATER COUNTY, MT.

STATE OF MONTANA
DEPARTMENT OF STATE LANDS
ABANDONED MINE RECLAMATION BUREAU, RECLAMATION DIVISION

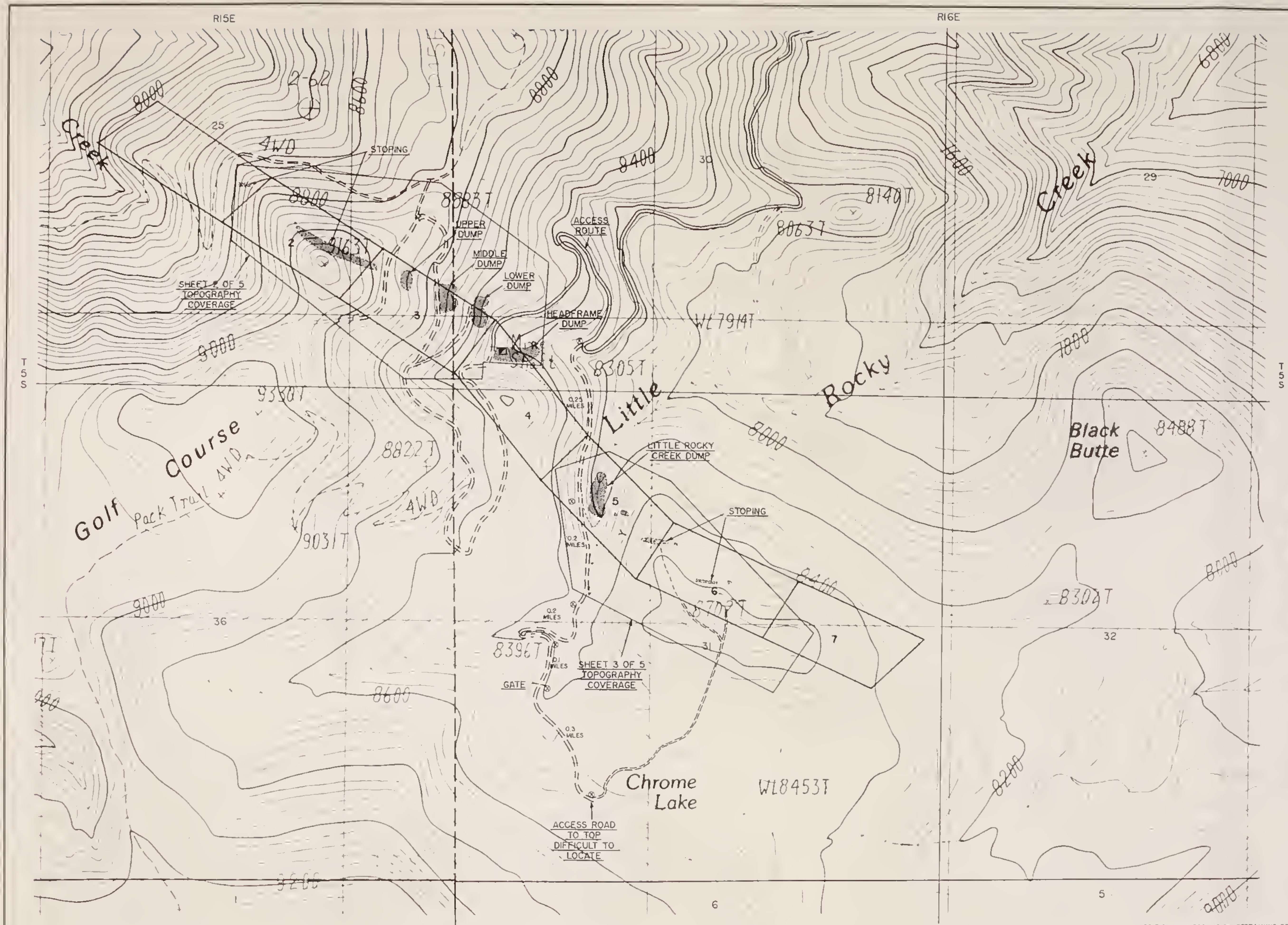
DATE	FEBRUARY, 1989
DRAWN BY:	LNR
CHECKED BY:	
APPROVED BY:	

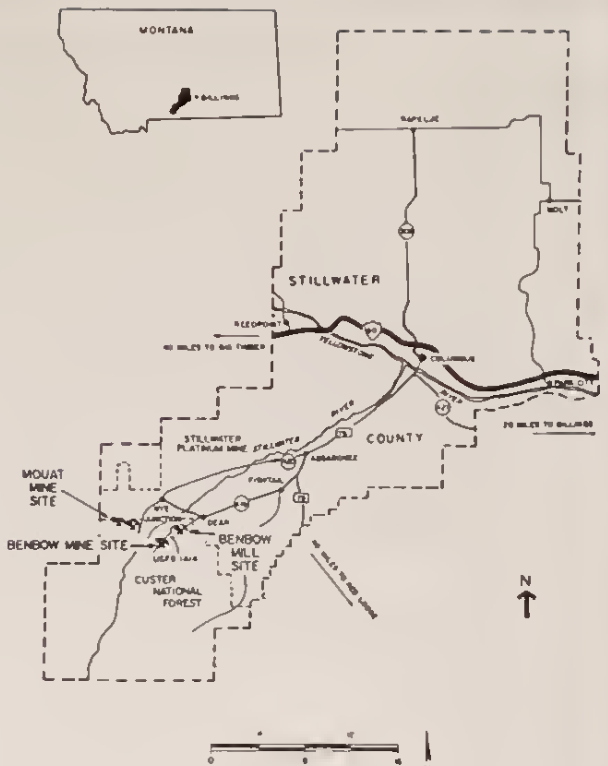
REVISIONS

NO	DATE	BY
1	4-30-90	LNR

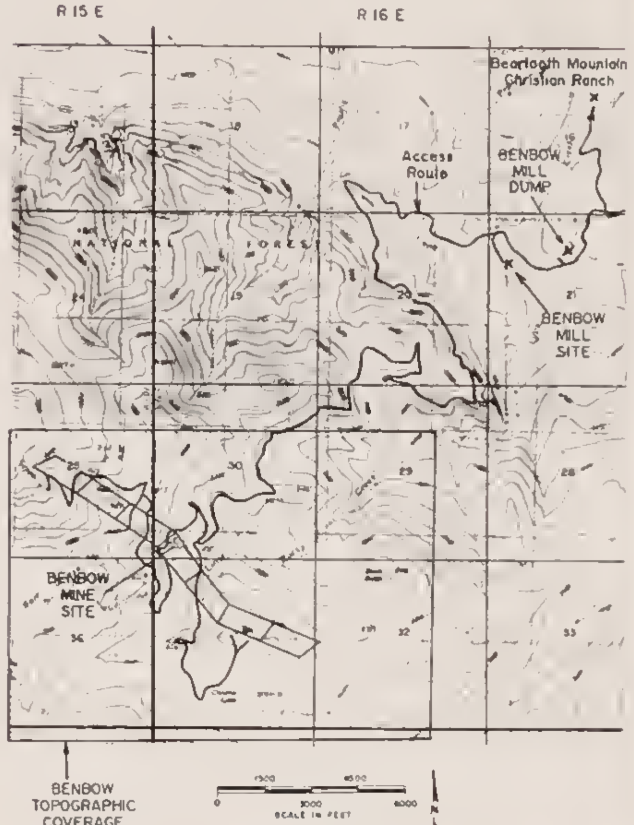
SPECTRUM ENGINEERING
Mining and Civil Engineers
3302 4th AVE NORTH
BILLINGS, MONTANA

SHEET NO 2 of 2





VICINITY ACCESS MAP



SITE LOCATION MAP

PATENTED CLAIMS

- 1 BIG SEVEN CLAIM
- 2 MAJESTIC CLAIM
- 3 TITANIC CLAIM
- 4 BLACK ROCK CLAIM
- 5 ECLIPSE CLAIM
- 6 LUCKY STRIKE CLAIM
- 7 WAR EAGLE CLAIM

LANDOWNER:
T5S, R15E, Section 25
T5S, R16E, Section 30 & 31
7 Patented Claims

Benbow Mines Ltd.
Formerly Chromium
Products Corporation
c/o Ben Berg, Jr.
Box 550
Bozeman, MT 59715
Phone: 406/587-3181

LESSEE:
Chrome Corp. International
c/o John Sellar
Vice-President-Operations
12640 W. Cedar Drive
Suite B
Lakewood, CO 80228
Phone: 303/969-8903

⊗ 0.3 ⊗
DISTANCE BETWEEN
MILE MARKERS

0 250 500 750 1000
SCALE IN FEET
CONTOUR INTERVAL - 10 FT

N

ADDITIONAL INFORMATION PERTAINING TO THIS SITE MAY EXIST IN THE DEPARTMENT OF STATE LANDS' FILES OR AT SPECTRUM ENGINEERING'S OFFICE THIS MATERIAL IS AVAILABLE FOR REVIEW BY ANY INTERESTED PARTY

NOTICE

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SITE PLAN AND GENERAL LAYOUT

BENBOW MINE SITE
SECTION 25, T5S, R15E
SECTIONS 30 AND 31, T5S, R16E
STILLWATER COUNTY, MONTANA

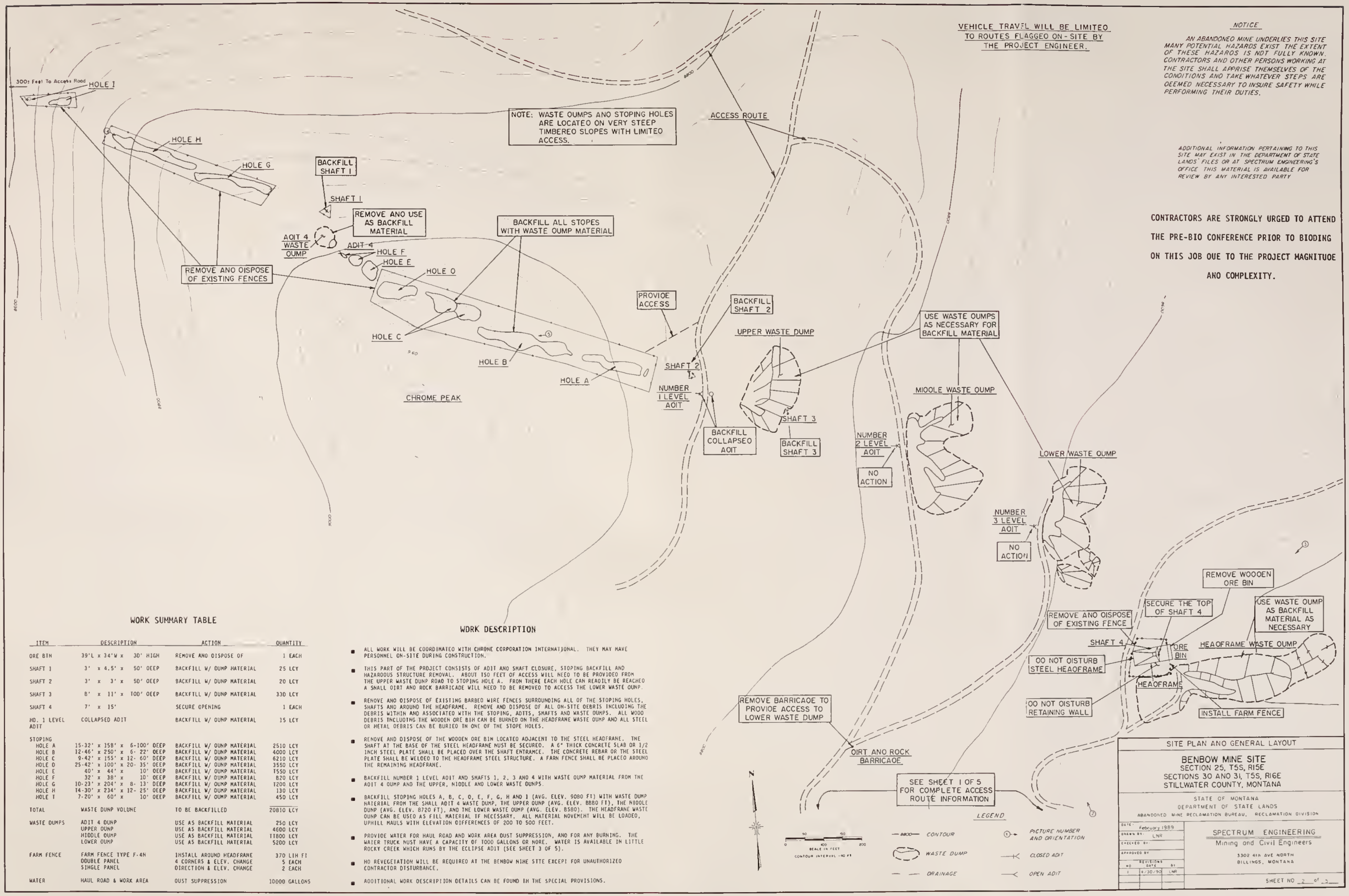
STATE OF MONTANA
DEPARTMENT OF STATE LANDS
ABANDONED MINE RECLAMATION BUREAU, RECLAMATION DIVISION

DATE: February 1989
DRAWN BY: LNR
CHECKED BY:
APPROVED BY:

REVISIONS		
NO	DATE	BY

SPECTRUM ENGINEERING
Mining and Civil Engineers
3302 4th AVE NORTH
BILLINGS, MONTANA

SHEET NO 1 of 5


300± Feet To Access Road
HOLE I
HOLE H
HOLE G
BACKFILL SHAFT 1
SHAFT 1
REMOVE AND USE AS BACKFILL MATERIAL
ADIT 4 WASTE DUMP
ADIT 4
HOLE F
HOLE E
HOLE D
BACKFILL ALL STOPES WITH WASTE DUMP MATERIAL
REMOVE AND DISPOSE OF EXISTING FENCES
HOLE C
HOLE B
HOLE A
CHROME PEAK
NOTE: WASTE DUMPS AND STOPING HOLES ARE LOCATED ON VERY STEEP TIMBERED SLOPES WITH LIMITED ACCESS.
ACCESS ROUTE
VEHICLE TRAVEL WILL BE LIMITED TO ROUTES FLAGGED ON-SITE BY THE PROJECT ENGINEER.
PROVIDE ACCESS
BACKFILL SHAFT 2
SHAFT 2
UPPER WASTE DUMP
NUMBER 1 LEVEL ADIT
BACKFILL COLLAPSED ADIT
SHAFT 3
BACKFILL SHAFT 3
USE WASTE DUMPS AS NECESSARY FOR BACKFILL MATERIAL
MIDDLE WASTE DUMP
NUMBER 2 LEVEL ADIT
NO ACTION
LOWER WASTE DUMP
NUMBER 3 LEVEL ADIT
NO ACTION
REMOVE WOODEN ORE BIN
SECURE THE TOP OF SHAFT 4
USE WASTE DUMP AS BACKFILL MATERIAL AS NECESSARY
REMOVE AND DISPOSE OF EXISTING FENCE
SHAFT 4
ORE BIN
HEADFRAME WASTE DUMP
DO NOT DISTURB STEEL HEADFRAME
HEADFRAME
DO NOT DISTURB RETAINING WALL
INSTALL FARM FENCE
REMOVE BARRICADE TO PROVIDE ACCESS TO LOWER WASTE DUMP
DIRT AND ROCK BARRICADE
SEE SHEET 1 OF 5 FOR COMPLETE ACCESS ROUTE INFORMATION
N
0
50
100
150
200
SCALE IN FEET
CONTOUR INTERVAL - 40 FT
LEGEND
8800 CONTOUR
WASTE DUMP
DRAINAGE
① PICTURE NUMBER AND ORIENTATION
CLOSED ADIT
OPEN ADIT
②
③
8600
8800
9000

NOTICE

AN ABANDONED MINE UNDERLIES THIS SITE MANY POTENTIAL HAZARDS EXIST THE EXTENT OF THESE HAZARDS IS NOT FULLY KNOWN. CONTRACTORS AND OTHER PERSONS WORKING AT THE SITE SHALL APPRISE THEMSELVES OF THE CONDITIONS AND TAKE WHATEVER STEPS ARE DEEMED NECESSARY TO INSURE SAFETY WHILE PERFORMING THEIR DUTIES.

ADDITIONAL INFORMATION PERTAINING TO THIS SITE MAY EXIST IN THE DEPARTMENT OF STATE LANDS' FILES OR AT SPECTRUM ENGINEERING'S OFFICE THIS MATERIAL IS AVAILABLE FOR REVIEW BY ANY INTERESTED PARTY

CONTRACTORS ARE STRONGLY URGED TO ATTEND THE PRE-BID CONFERENCE PRIOR TO BIDDING ON THIS JOB DUE TO THE PROJECT MAGNITUDE AND COMPLEXITY.

WORK SUMMARY TABLE

ITEM	DESCRIPTION	ACTION	QUANTITY
ORE BIN	39'L x 34'W x 30' HIGH	REMOVE AND DISPOSE OF	1 EACH
SHAFT 1	3' x 4.5' x 50' DEEP	BACKFILL W/ DUMP MATERIAL	25 LCY
SHAFT 2	3' x 3' x 50' DEEP	BACKFILL W/ DUMP MATERIAL	20 LCY
SHAFT 3	8' x 11' x 100' DEEP	BACKFILL W/ DUMP MATERIAL	330 LCY
SHAFT 4	7' x 15'	SECURE OPENING	1 EACH
NO. 1 LEVEL ADIT	COLLAPSED ADIT	BACKFILL W/ DUMP MATERIAL	15 LCY
STOPING			
HOLE A	15-32' x 158' x 6-100' DEEP	BACKFILL W/ DUMP MATERIAL	2510 LCY
HOLE B	12-46' x 250' x 6- 22' DEEP	BACKFILL W/ DUMP MATERIAL	4000 LCY
HOLE C	9-42' x 155' x 12- 60' DEEP	BACKFILL W/ DUMP MATERIAL	6210 LCY
HOLE D	25-42' x 100' x 20- 35' DEEP	BACKFILL W/ DUMP MATERIAL	3550 LCY
HOLE E	40' x 44' x 10' DEEP	BACKFILL W/ DUMP MATERIAL	1550 LCY
HOLE F	32' x 38' x 10' DEEP	BACKFILL W/ DUMP MATERIAL	820 LCY
HOLE G	10-23' x 204' x 8- 13' DEEP	BACKFILL W/ DUMP MATERIAL	1200 LCY
HOLE H	14-30' x 234' x 12- 25' DEEP	BACKFILL W/ DUMP MATERIAL	130 LCY
HOLE I	7-20' x 60' x 10' DEEP	BACKFILL W/ DUMP MATERIAL	450 LCY
TOTAL	WASTE DUMP VOLUME	TO BE BACKFILLED	20810 LCY
WASTE DUMPS	ADIT 4 DUMP	USE AS BACKFILL MATERIAL	250 LCY
	UPPER DUMP	USE AS BACKFILL MATERIAL	4600 LCY
	MIDDLE DUMP	USE AS BACKFILL MATERIAL	11800 LCY
	LOWER DUMP	USE AS BACKFILL MATERIAL	5200 LCY
FARM FENCE	FARM FENCE TYPE F-4N	INSTALL AROUND HEADFRAME	370 LIN FT
	DOUBLE PANEL	4 CORNERS & ELEV. CHANGE	5 EACH
	SINGLE PANEL	DIRECTION & ELEV. CHANGE	2 EACH
WATER	HAUL ROAD & WORK AREA	DUST SUPPRESSION	10000 GALLONS

WORK DESCRIPTION

- ALL WORK WILL BE COORDINATED WITH CHROME CORPORATION INTERNATIONAL. THEY MAY HAVE PERSONNEL ON-SITE DURING CONSTRUCTION.
- THIS PART OF THE PROJECT CONSISTS OF ADIT AND SHAFT CLOSURE, STOPING BACKFILL AND HAZARDOUS STRUCTURE REMOVAL. ABOUT 150 FEET OF ACCESS WILL NEED TO BE PROVIDED FROM THE UPPER WASTE DUMP ROAD TO STOPING HOLE A. FROM THERE EACH HOLE CAN READILY BE REACHED A SMALL DIRT AND ROCK BARRICADE WILL NEED TO BE REMOVED TO ACCESS THE LOWER WASTE DUMP.
- REMOVE AND DISPOSE OF EXISTING BARBED WIRE FENCES SURROUNDING ALL OF THE STOPING HOLES, SHAFTS AND AROUND THE HEADFRAME. REMOVE AND DISPOSE OF ALL ON-SITE DEBRIS INCLUDING THE DEBRIS WITHIN AND ASSOCIATED WITH THE STOPING, ADITS, SHAFTS AND WASTE DUMPS. ALL WOOD DEBRIS INCLUDING THE WOODEN ORE BIN CAN BE BURNED ON THE HEADFRAME WASTE DUMP AND ALL STEEL OR METAL DEBRIS CAN BE BURIED IN ONE OF THE STOPE HOLES.
- REMOVE AND DISPOSE OF THE WOODEN ORE BIN LOCATED ADJACENT TO THE STEEL HEADFRAME. THE SHAFT AT THE BASE OF THE STEEL HEADFRAME MUST BE SECURED. A 6" THICK CONCRETE SLAB OR 1/2 INCH STEEL PLATE SHALL BE PLACED OVER THE SHAFT ENTRANCE. THE CONCRETE REBAR OR THE STEEL PLATE SHALL BE WELDED TO THE HEADFRAME STEEL STRUCTURE. A FARM FENCE SHALL BE PLACED AROUND THE REMAINING HEADFRAME.
- BACKFILL NUMBER 1 LEVEL ADIT AND SHAFTS 1, 2, 3 AND 4 WITH WASTE DUMP MATERIAL FROM THE ADIT 4 DUMP AND THE UPPER, MIDDLE AND LOWER WASTE DUMPS.
- BACKFILL STOPING HOLES A, B, C, D, E, F, G, H AND I (AVG. ELEV. 9080 FT) WITH WASTE DUMP MATERIAL FROM THE SMALL ADIT 4 WASTE DUMP, THE UPPER DUMP (AVG. ELEV. 8880 FT), THE MIDDLE DUMP (AVG. ELEV. 8720 FT), AND THE LOWER WASTE DUMP (AVG. ELEV. 8580). THE HEADFRAME WASTE DUMP CAN BE USED AS FILL MATERIAL IF NECESSARY. ALL MATERIAL MOVEMENT WILL BE LOADED, UPHILL HAULS WITH ELEVATION DIFFERENCES OF 200 TO 500 FEET.
- PROVIDE WATER FOR HAUL ROAD AND WORK AREA DUST SUPPRESSION, AND FOR ANY BURNING. THE WATER TRUCK MUST HAVE A CAPACITY OF 1000 GALLONS OR MORE. WATER IS AVAILABLE IN LITTLE ROCKY CREEK WHICH RUNS BY THE ECLIPSE ADIT (SEE SHEET 3 OF 5).
- NO REVEGETATION WILL BE REQUIRED AT THE BENBOW MINE SITE EXCEPT FOR UNAUTHORIZED CONTRACTOR DISTURBANCE.
- ADDITIONAL WORK DESCRIPTION DETAILS CAN BE FOUND IN THE SPECIAL PROVISIONS.

SITE PLAN AND GENERAL LAYOUT

BENBOW MINE SITE
SECTION 25, T5S, R15E
SECTIONS 30 AND 31, T5S, R16E
STILLWATER COUNTY, MONTANA

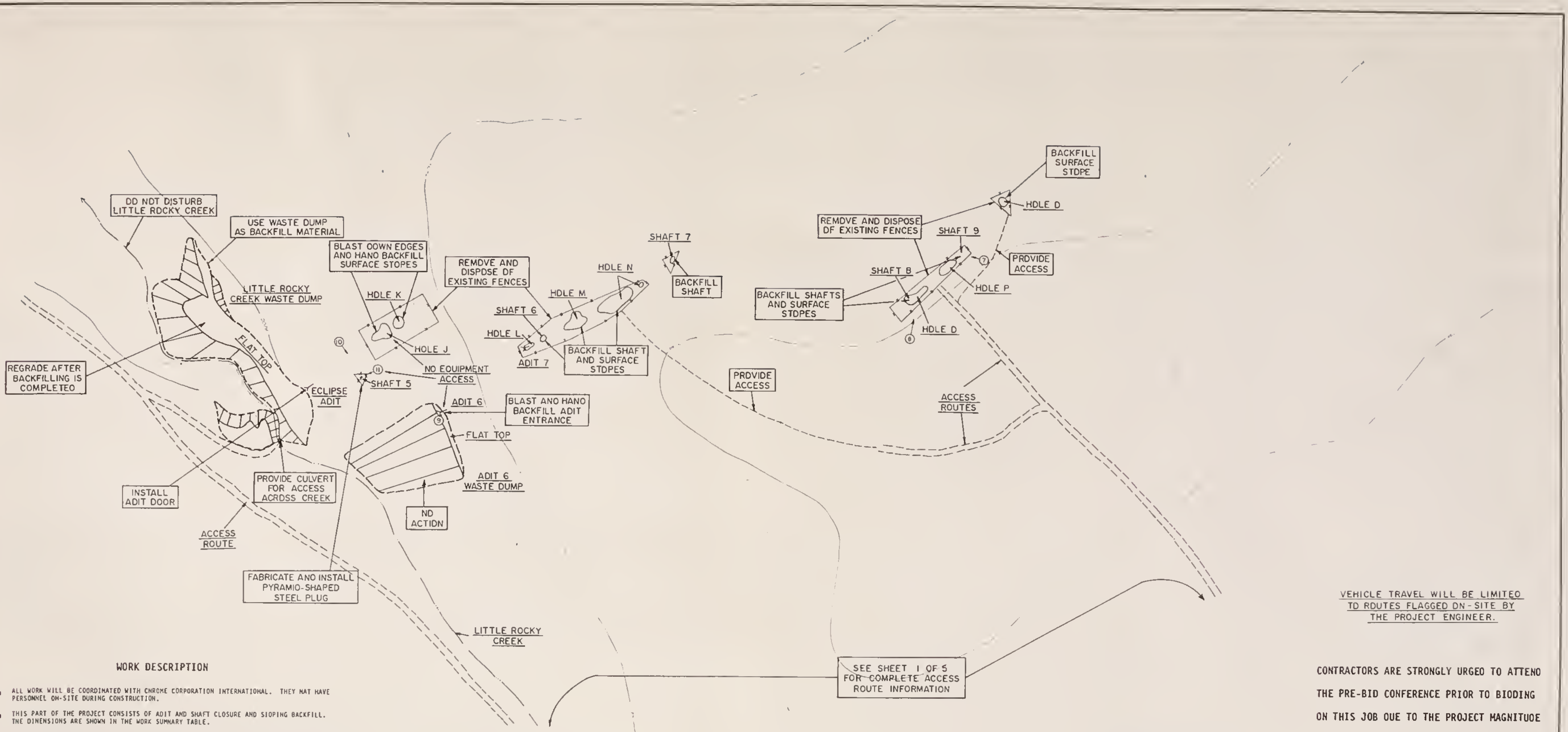
STATE OF MONTANA
DEPARTMENT OF STATE LANDS
ABANDONED MINE RECLAMATION BUREAU, RECLAMATION DIVISION

DATE: February 1989
DRAWN BY: LNR
CHECKED BY:
APPROVED BY:

REVISIONS NO	DATE	BY
1	4/30/90	LNR

SPECTRUM ENGINEERING
Mining and Civil Engineers
3302 4th AVE NORTH
BILLINGS, MONTANA

SHEET NO 2 of 5


DO NOT DISTURB LITTLE ROCKY CREEK
USE WASTE DUMP AS BACKFILL MATERIAL
BLAST DOWN EDGES AND HAND BACKFILL SURFACE STOPES
REMOVE AND DISPOSE OF EXISTING FENCES
LITTLE ROCKY CREEK WASTE DUMP
HOLE K
FLAT TOP
REGRADE AFTER BACKFILLING IS COMPLETED
HOLE J
NO EQUIPMENT ACCESS
ECLIPSE ADIT
SHAFT 5
ADIT 6
BLAST AND HAND BACKFILL ADIT ENTRANCE
FLAT TOP
ADIT 6 WASTE DUMP
NO ACTION
INSTALL ADIT DOOR
PROVIDE CULVERT FOR ACCESS ACROSS CREEK
ACCESS ROUTE
FABRICATE AND INSTALL PYRAMID-SHAPED STEEL PLUG
LITTLE ROCKY CREEK
SHAFT 6
HOLE M
HOLE N
HOLE L
ADIT 7
BACKFILL SHAFT AND SURFACE STOPES
SHAFT 7
BACKFILL SHAFT
PROVIDE ACCESS
REMOVE AND DISPOSE OF EXISTING FENCES
SHAFT 9
SHAFT 8
BACKFILL SHAFTS AND SURFACE STOPES
HOLE O
HOLE P
HOLE Q
BACKFILL SURFACE STOPE
PROVIDE ACCESS
ACCESS ROUTES
SEE SHEET 1 OF 5 FOR COMPLETE ACCESS ROUTE INFORMATION
⑧
⑨
⑩
⑪
⑦

VEHICLE TRAVEL WILL BE LIMITED TO ROUTES FLAGGED ON-SITE BY THE PROJECT ENGINEER.

CONTRACTORS ARE STRONGLY URGED TO ATTEND THE PRE-BID CONFERENCE PRIOR TO BIDDING ON THIS JOB DUE TO THE PROJECT MAGNITUDE AND COMPLEXITY.

WORK DESCRIPTION

- ALL WORK WILL BE COORDINATED WITH CHROME CORPORATION INTERNATIONAL. THEY MAY HAVE PERSONNEL ON-SITE DURING CONSTRUCTION.
- THIS PART OF THE PROJECT CONSISTS OF ADIT AND SHAFT CLOSURE AND STOPING BACKFILL. THE DIMENSIONS ARE SHOWN IN THE WORK SUMMARY TABLE.

••

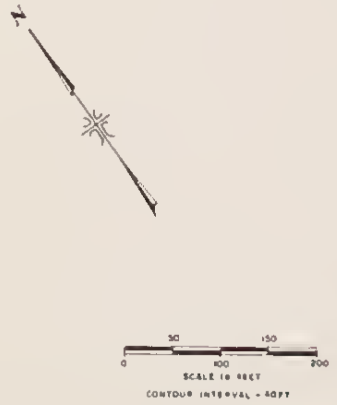
- THE FIRST ITEM OF WORK AT THE BENBOW SITE SHALL BE TO CONSTRUCT AN INVERTED PYRAMID-SHAPED PLUG ON-SITE FOR SHAFT 5. THERE IS NO VEHICLE ACCESS TO SHAFT 5. AFTER FABRICATION, THE STATE OF MONTANA WILL BE NOTIFIED THAT THEIR HELICOPTER IS NEEDED. SOMETIME PRIOR TO JOB COMPLETION THE HELICOPTER WILL BE PROVIDED TO AIRLIFT THE PYRAMID TO THE SHAFT. THE CONTRACTOR WILL BE RESPONSIBLE FOR PLACEMENT INTO THE SHAFT. THE REBAR TO BE PLACED INSIDE THE PYRAMID WILL BE AIRLIFTED SEPARATELY FROM THE PYRAMID DUE TO HELICOPTER WEIGHT RESTRICTIONS. THE CONTRACTOR WILL THEN COMPLETE THE FABRICATION AND FILL THE PYRAMID WITH CONCRETE. THE CONTRACTOR WILL NOT BE ALLOWED TO ESTABLISH ANY FORM OF ACCESS ROAD TO THE SHAFT.

••

- REHABILITATE THE DOOR AND PROVIDE & INSTALL A LOCK ON THE ENTRANCE TO THE ECLIPSE ADIT.
- REMOVE AND DISPOSE OF EXISTING BARBED WIRE FENCES SURROUNDING ALL OF THE STOPING HOLES AND SHAFTS. REMOVE AND DISPOSE OF ALL ON-SITE DEBRIS INCLUDING THE DEBRIS WITHIN AND ASSOCIATED WITH THE STOPING, ADITS, SHAFTS AND WASTE DUMPS.
- DRILL AND BLAST ADIT 6 CLOSED AND HAND BACKFILL THE REMAINING DEPRESSION.
- DRILL AND BLAST DOWN THE SIDES OF STOPING HOLES J AND K. SOME HAND WORK WILL BE NECESSARY TO REDUCE ANY REMAINING HAZARDS. DRILLING EQUIPMENT OR AIR HOSES AND JACKLEG MUST BE HAND CARRIED TO THE SITE. THERE IS NO EQUIPMENT ACCESS.
- BACKFILL SHAFTS 6, 7, 8 AND 9 AND STOPING HOLES L, M, N, O, P AND Q WITH WASTE DUMP MATERIAL FROM LITTLE ROCKY CREEK DUMP IN FRONT OF THE ECLIPSE ADIT. THERE IS VEHICLE ACCESS TO THESE FEATURES. AN ACCESS ROAD WILL NEED TO BE PROVIDED TO REACH SHAFTS 6 AND 7 AND STOPING HOLES L, M AND N.
- A 30 FOOT, 24 INCH DIAMETER CULVERT MUST BE PROVIDED AND PLACED INTO LITTLE ROCKY CREEK TO ACCESS THE WASTE DUMP AND THE ECLIPSE ADIT. THE CULVERT WILL BE REMOVED UPON JOB COMPLETION AND REMAIN THE PROPERTY OF THE CONTRACTOR.
- PROVIDE WATER FOR HAUL ROAD AND WORK AREA DUST SUPPRESSION, AND FOR ANY BURNING. THE WATER TRUCK MUST HAVE A CAPACITY OF 1000 GALLONS OR MORE. WATER MAY BE AVAILABLE IN LITTLE ROCKY CREEK WHICH RUNS BY THE ECLIPSE ADIT.
- NO REVEGETATION WILL BE REQUIRED AT THE BENBOW MINE SITE EXCEPT FOR UNAUTHORIZED CONTRACTOR DISTURBANCE. THE LITTLE ROCKY CREEK DUMP WILL NEED TO BE REGRADED AFTER ALL BACKFILLING OPERATIONS ARE COMPLETED. LITTLE ROCKY CREEK CAN NOT BE DISTURBED.
- ADDITIONAL WORK DESCRIPTION DETAILS CAN BE FOUND IN THE SPECIAL PROVISIONS.

WORK SUMMARY TABLE

ITEM	DESCRIPTION	ACTION	QUANTITY
ECLIPSE ADIT	5'W x 6'H OPENING	INSTALL LOCKING ADIT DOOR	1 EACH
HELICOPTER	MOVE STEEL PYRAMID PLUG TO SHAFT 5	AIRLIFTED TO SHAFT WITH CONTRACTOR PLACEMENT	
SHAFT 5	3.5' x 7.5' x 100' DEEP	FABRICATE AND INSTALL INVERTED PYRAMID-SHAPED PLUG	1 EACH
ADIT 6	5'W x 6'H OPENING x 10'D	BLAST AND HAND BACKFILL	10 LCY
STOPING			
HOLE J	14-30' x ' x 4-10' DEEP	BLAST DOWN STOPE EDGES HAND BACKFILL	100 LCY 25 LCY
HOLE K	15' x 25' x 30' DEEP	BLAST DOWN STOPE EDGES HAND BACKFILL	260 LCY 40 LCY
SHAFT 6	9.5' x 10.5'x 100' DEEP	BACKFILL W/ DUMP MATERIAL	370 LCY
SHAFT 7	8' x 13' x 100' DEEP	BACKFILL W/ DUMP MATERIAL	385 LCY
SHAFT 8	8' x 8' x 100' DEEP	BACKFILL W/ DUMP MATERIAL	240 LCY
SHAFT 9	9' x 12' x 100' DEEP	BACKFILL W/ DUMP MATERIAL	400 LCY
STOPING			
HOLE L	12' x 25' x 0- 7' DEEP	BACKFILL W/ DUMP MATERIAL	50 LCY
HOLE M	9-33' x 50' x 0-17' DEEP	BACKFILL W/ DUMP MATERIAL	600 LCY
HOLE N	10-33' x 115' x 8-17' DEEP	BACKFILL W/ DUMP MATERIAL	1260 LCY
HOLE O	8-20' x 57' x 7-18' DEEP	BACKFILL W/ DUMP MATERIAL	370 LCY
HOLE P	20' x 38' x 40' DEEP	BACKFILL W/ DUMP MATERIAL	1130 LCY
HOLE Q	14' x 20' x 17' DEEP	BACKFILL W/ DUMP MATERIAL	60 LCY
WATER	HAUL ROAD & WORK AREA	DUST SUPPRESSION	10000 GALLONS



Vertical Datum Based On Interpolation Of USGS 7½' Quadrangle: MT WOOD
Topography Prepared From Ground Survey Conducted In 1988 By Spectrum Engineering Using A Plane Table And Alidade. This Topography Is Of Reconnaissance Class And Has Not Been Field Checked

ADDITIONAL INFORMATION PERTAINING TO THIS SITE MAY EXIST IN THE DEPARTMENT OF STATE LANDS' FILES OR AT SPECTRUM ENGINEERING'S OFFICE. THIS MATERIAL IS AVAILABLE FOR REVIEW BY ANY INTERESTED PARTY

LEGEND

—8400—	*CONTOUR*	①→	*PICTURE NUMBER AND ORIENTATION*
	WASTE DUMP	—⊱	*CLOSED ADIT*
— · —	*DRAINAGE*	—<	*OPEN ADIT*

NOTICE

AN ABANDONED MINE UNDERLIES THIS SITE. MANY POTENTIAL HAZARDS EXIST. THE EXTENT OF THESE HAZARDS IS NOT FULLY KNOWN. CONTRACTORS AND OTHER PERSONS WORKING AT THE SITE SHALL APPRISE THEMSELVES OF THE CONDITIONS AND TAKE WHATEVER STEPS ARE DEEMED NECESSARY TO INSURE SAFETY WHILE PERFORMING THEIR DUTIES.

SITE PLAN AND GENERAL LAYOUT

BENBOW MINE SITE
SECTION 25, T5S, R15E
SECTIONS 30 AND 31, T5S, R16E
STILLWATER COUNTY, MONTANA

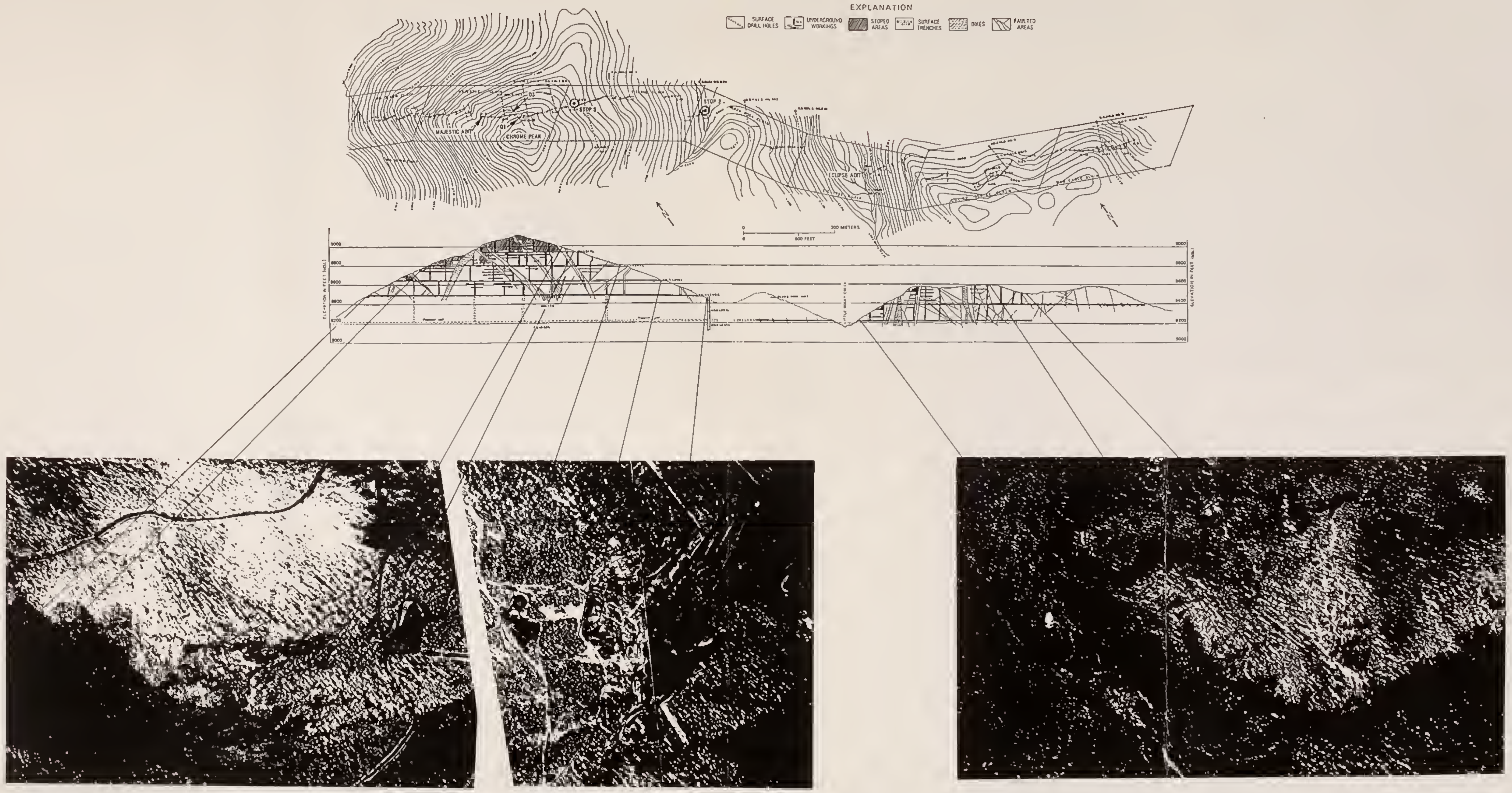
STATE OF MONTANA
DEPARTMENT OF STATE LANDS
ABANDONED MINE RECLAMATION BUREAU, RECLAMATION DIVISION

DATE FEBRUARY, 1989
DRAWN BY: LNR
CHECKED BY:
APPROVED BY

REVISIONS NO	DATE	BY
1	3/1990	LNR
2	4/30/90	LNR

SPECTRUM ENGINEERING
Mining and Civil Engineers
3302 4th AVE NORTH
BILLINGS, MONTANA

SHEET NO 3 of 5



① PICTURE 1 CONSISTS OF 3 AERIAL VIEWS OF THE PROJECT WHICH CORRESPONDS TO THE CROSS-SECTION ABOVE.

SITE PLAN AND GENERAL LAYOUT

BENBOW MINE SITE
SECTION 25, T5S, R15E
SECTIONS 30 AND 31, T5S, R16E
STILLWATER COUNTY, MONTANA

STATE OF MONTANA
DEPARTMENT OF STATE LANDS
ABANDONED MINE RECLAMATION BUREAU, RECLAMATION DIVISION

DATE: February 1989
DRAWN BY: LNR
CHECKED BY:
APPROVED BY:

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NO.	DATE	BY

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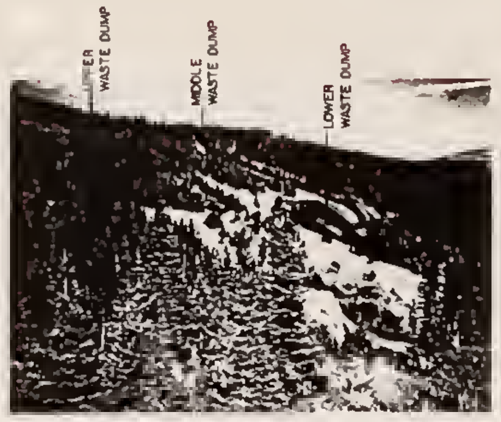
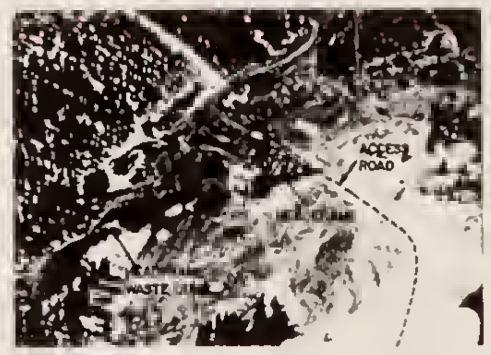
Mining and Civil Engineers
3302 4th AVE NORTH
BILLINGS, MONTANA

SHEET NO 4 of 5



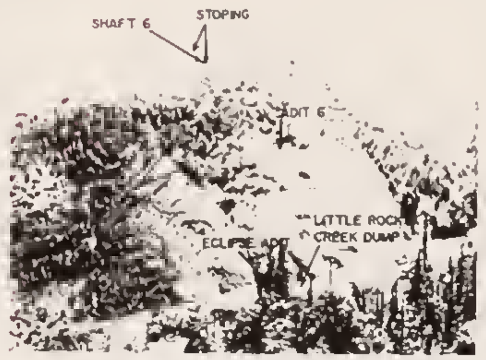
② PICTURE 2 SHOWS THE LOWER, MIDDLE, AND UPPER WASTE DUMPS ON CHROME PEAK.



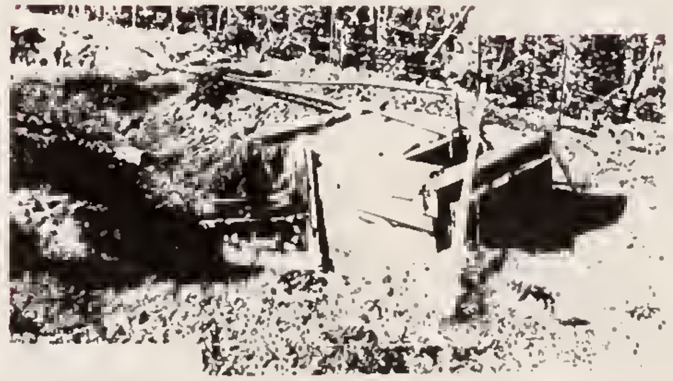
③ PICTURE 3 IS A HELICOPTER VIEW SHOWING THE HEADFRAME AND ORE BIN, THE ACCESS ROAD, AND THE HEADFRAME WASTE DUMP.

④ PICTURE 4 SHOWS SOME OF THE STOPING AND DEBRIS ON CHROME PEAK.

⑤ PICTURE 5 IS ANOTHER VIEW OF THE STOPING ON CHROME PEAK.



⑥ PICTURE 6 IS A HELICOPTER VIEW SHOWING THE LITTLE ROCKY CREEK DUMP, ADIT 6 AND THE ECLIPSE ADIT. PORTIONS OF STOPING ARE ALSO SHOWN.



⑦ PICTURE 7 SHOWS SHAFT 9, ADJACENT STOPING AND DEBRIS

⑧ PICTURE 8 SHOWS SHAFT 8, AND THE ADJACENT STOPING WITH DEBRIS

⑨ PICTURE 9 SHOWS ADIT 6.

⑩ PICTURE 10 SHOWS SHAFT 5 ON THE HILLSIDE ABOVE THE ECLIPSE ADIT.

⑪ PICTURE 11 IS ANOTHER VIEW OF SHAFT 5

SITE PLAN AND GENERAL LAYOUT

BENBOW MINE SITE
SECTION 25, T5S, R15E
SECTIONS 30 AND 31, T5S, R16E
STILLWATER COUNTY, MONTANA

STATE OF MONTANA
DEPARTMENT OF STATE LANDS
ABANDONED MINE RECLAMATION BUREAU, RECLAMATION DIVISION

DATE: February 1989
DRAWN BY: LNR
CHECKED BY:
APPROVED BY:

REVISIONS		
NO	DATE	BY

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3302 4th AVE NORTH
BILLINGS, MONTANA

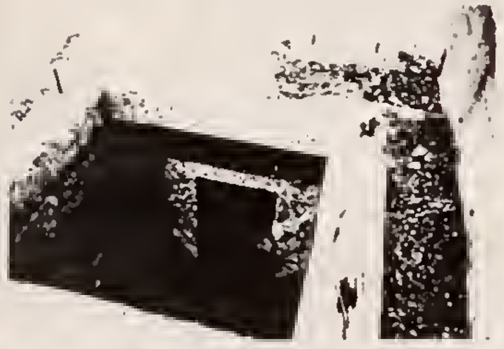
SHEET NO. 5 of 5

ATTACHMENT 6

AS-BUILT DRAWINGS

① PICTURE 1 SHOWS THE ENTRANCE TO ADIT CONVEYOR GALLERY 3 AND THE CONCRETE PILLARS.

② PICTURE 2 IS A VIEW OF A CONCRETE WALL WITH A 20 FOOT VERTICAL DROP.

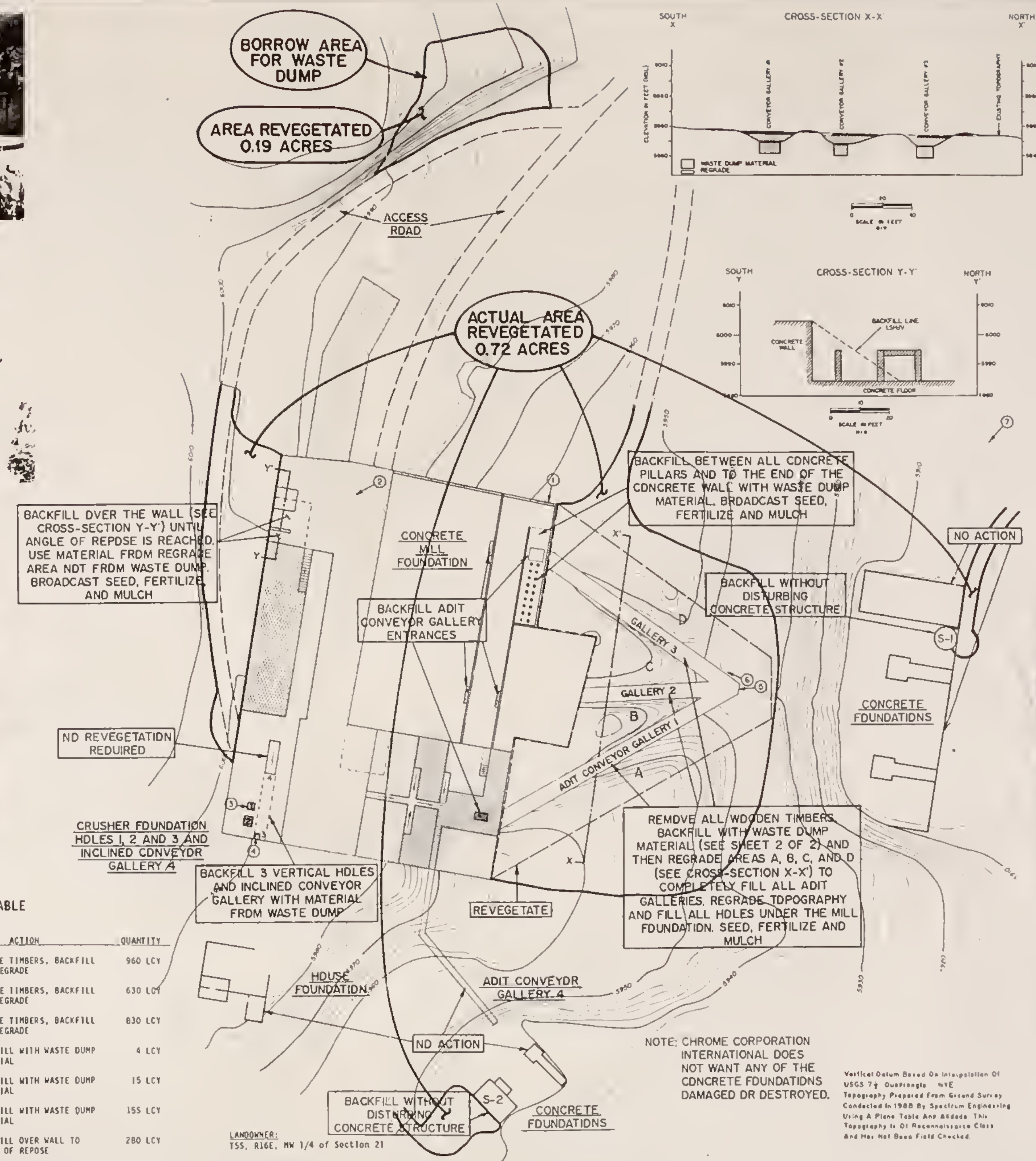

③ PICTURE 3 SHOWS HOLE 1 OF THE CRUSHER FOUNDATION.

④ PICTURE 4 IS LOOKING DOWN HOLE 3 IN THE CRUSHER CONVEYOR GALLERY

⑤ PICTURE 5 SHOWS ADIT CONVEYOR GALLERIES 1 AND 2

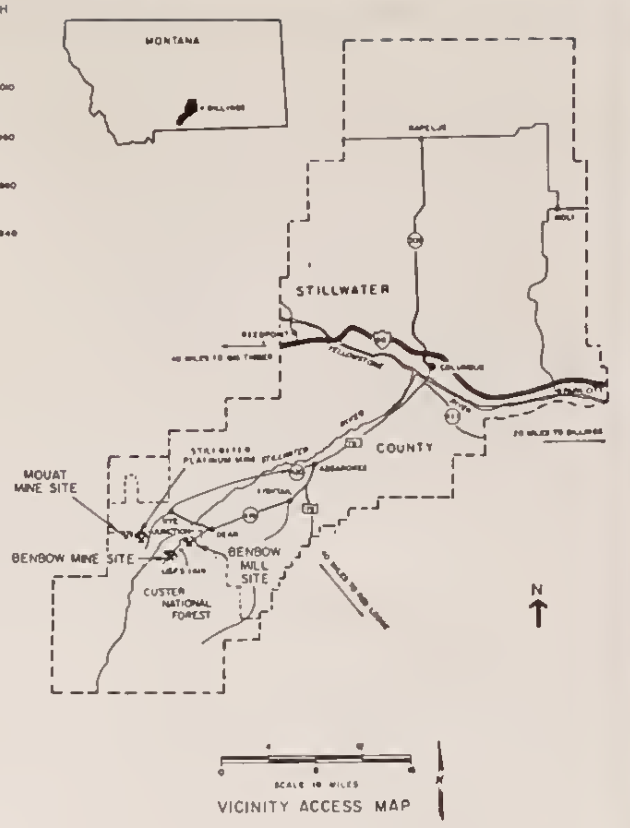
⑥ PICTURE 6 SHOWS ADIT CONVEYOR GALLERY 3

⑦ PICTURE 7 IS A HELICOPTER VIEW OF THE MILL COMPLEX.

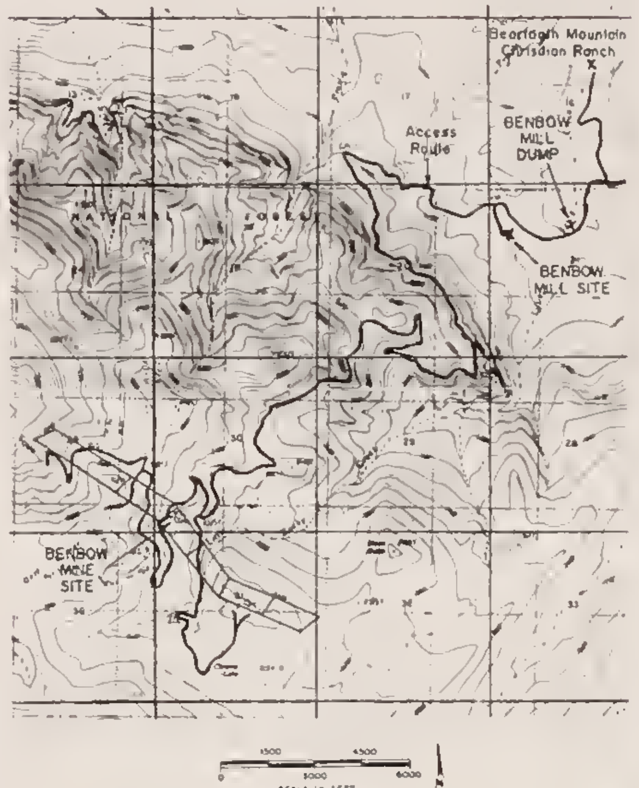

BORROW AREA FOR WASTE DUMP
AREA REVEGETATED 0.19 ACRES
ACCESS ROAD
ACTUAL AREA REVEGETATED 0.72 ACRES
SOUTH X
CROSS-SECTION X-X'
NORTH X'
ELEVATION IN FEET (MSL)
CONVEYOR GALLERY #1
CONVEYOR GALLERY #2
CONVEYOR GALLERY #3
EXISTING TOPOGRAPHY
WASTE DUMP MATERIAL
REGRADE
SCALE IN FEET
SOUTH Y
CROSS-SECTION Y-Y'
NORTH Y'
CONCRETE WALL
BACKFILL LINE
CONCRETE FLOOR
SCALE IN FEET
BACKFILL OVER THE WALL (SEE CROSS-SECTION Y-Y') UNTIL ANGLE OF REPOSE IS REACHED. USE MATERIAL FROM REGRADE AREA NOT FROM WASTE DUMP. BROADCAST SEED, FERTILIZE AND MULCH
CONCRETE MILL FOUNDATION
BACKFILL ADIT CONVEYOR GALLERY ENTRANCES
BACKFILL BETWEEN ALL CONCRETE PILLARS AND TO THE END OF THE CONCRETE WALL WITH WASTE DUMP MATERIAL. BROADCAST SEED, FERTILIZE AND MULCH
NO ACTION
BACKFILL WITHOUT DISTURBING CONCRETE STRUCTURE
S-1
GALLERY 3
GALLERY 2
ADIT CONVEYOR GALLERY 1
A
B
C
D
X
X'
Y
Y'
CONCRETE FOUNDATIONS
NO REVEGETATION REQUIRED
CRUSHER FOUNDATION HOLES 1, 2 AND 3 AND INCLINED CONVEYOR GALLERY 4
BACKFILL 3 VERTICAL HOLES AND INCLINED CONVEYOR GALLERY WITH MATERIAL FROM WASTE DUMP
REMOVE ALL WOODEN TIMBERS. BACKFILL WITH WASTE DUMP MATERIAL (SEE SHEET 2 OF 2) AND THEN REGRADE AREAS A, B, C, AND D (SEE CROSS-SECTION X-X') TO COMPLETELY FILL ALL ADIT GALLERIES. REGRADE TOPOGRAPHY AND FILL ALL HOLES UNDER THE MILL FOUNDATION. SEED, FERTILIZE AND MULCH
REVEGETATE
HOUSE FOUNDATION
ADIT CONVEYOR GALLERY 4
NO ACTION
BACKFILL WITHOUT DISTURBING CONCRETE STRUCTURE
S-2
CONCRETE FOUNDATIONS
5950
5940
5930

NOTE: CHROME CORPORATION INTERNATIONAL DOES NOT WANT ANY OF THE CONCRETE FOUNDATIONS DAMAGED OR DESTROYED.

Vertical Datum Based On Interpolation Of USGS 7½ Quadrangle NYE
Topography Prepared From Ground Survey Conducted In 1988 By Spectrum Engineering Using A Plane Table And Alidade. This Topography Is Of Reconnaissance Class And Has Not Been Field Checked.



VICINITY ACCESS MAP



SITE LOCATION MAP

WORK DESCRIPTION

- REMOVE ALL TIMBERS FROM ADIT CONVEYOR GALLERIES 1, 2, AND 3. BACKFILL THE 3 CONVEYOR GALLERIES WITH FILL MATERIAL TO COME FROM WASTE DUMP LOCATED 4100 FEET TO THE NORTH BY ROAD (MILL AT 6000 FT ELEV. & WASTE DUMP AT 5800 FT ELEV.). REGRADE THE MOUNDS OF DIRT LABELED A, B, C, AND D ORIGINALLY TAKEN FROM THE CONVEYOR GALLERIES. THE REGRADE PROCEDURE IS SHOWN ON CROSS-SECTION X-X'.
- BACKFILL CRUSHER FOUNDATION HOLES LABELED 1, 2, AND 3 AND CONCRETE-LINED INCLINED CONVEYOR GALLERY (LABELED 4). BACKFILL BETWEEN CONCRETE PILLARS AND THE 3 ADIT CONVEYOR ENTRANCES. ALSO BACKFILL CONCRETE STRUCTURES S-1 AND S-2. FILL MATERIAL TO COME FROM THE WASTE DUMP AND FROM THE DIRT MOUNDS A OR D.
- BACKFILL AGAINST VERTICAL CONCRETE WALL WITH MATERIAL FROM THE MOUNDS OF DIRT LABELED A, B, C, AND D.
- DISPOSE OF ALL TIMBERS (AND OTHER DEBRIS) REMOVED FROM THE ADIT CONVEYOR GALLERIES AND MILL FOUNDATION BY BURNING OR HAULING TO AN APPROVED DISPOSAL SITE.
- PROVIDE WATER FOR BACKFILL COMPACTION, ROAD & WORK AREA DUST SUPPRESSION, AND FOR ANY BURNING.
- REVEGETATE (FERTILIZE, SEED AND MULCH) ALL DISTURBED AREAS.
- ADDITIONAL WORK DESCRIPTION DETAILS CAN BE FOUND IN THE SPECIAL PROVISIONS.

WORK SUMMARY TABLE

ITEM	DESCRIPTION	ACTION	QUANTITY
ADIT CONVEYOR GALLERY 1	10 FEET ACROSS BY 165 FEET LONG, UP TO 12 FT DEEP	REMOVE TIMBERS, BACKFILL AND REGRADE	960 LCY
ADIT CONVEYOR GALLERY 2	10 FEET ACROSS BY 107 FEET LONG, UP TO 12 FT DEEP	REMOVE TIMBERS, BACKFILL AND REGRADE	630 LCY
ADIT CONVEYOR GALLERY 3	10 FEET ACROSS BY 142 FEET LONG, UP TO 12 FT DEEP	REMOVE TIMBERS, BACKFILL AND REGRADE	830 LCY
CRUSHER FOUNDATION HOLE 1	4.1 FEET BY 4.1 FEET BY 6 FEET DEEP	BACKFILL WITH WASTE DUMP MATERIAL	4 LCY
CRUSHER FOUNDATION HOLE 2	5.6 FEET BY 7.3 FEET BY 10 FEET DEEP	BACKFILL WITH WASTE DUMP MATERIAL	15 LCY
CRUSHER FOUNDATION HOLE 3 & 4	INCLINED 66.9 FT BY 6.2 FEET WIDE BY 20 FT DEEP	BACKFILL WITH WASTE DUMP MATERIAL	155 LCY
VERTICAL WALL	20 FT HIGH BY 30 FEET OUT BY 25 FEET ACROSS	BACKFILL OVER WALL TO ANGLE OF REPOSE	280 LCY
CONCRETE PILLARS	12 FT HIGH BY 15 FEET ACROSS BY 60 FEET OUT	BACKFILL BETWEEN PILLARS AND TO THE END OF WALL	400 LCY
CONCRETE STRUCTURE S-1	14 FT HIGH BY 15 FEET DIA.	BACKFILL WITH MATERIAL FROM DIRT MOUNDS A OR D	80 LCY
CONCRETE STRUCTURE S-2	12.5 FT HIGH BY 15 FEET WIDE BY 25 FEET LONG	BACKFILL WITH MATERIAL FROM DIRT MOUNDS A OR D	170 LCY
ADIT ENTRANCES	WITHIN MILL FOUNDATION	BACKFILL WITH WASTE DUMP MATERIAL	50 LCY
WATER	ALL BACKFILL AREAS HAUL ROADS & WORK AREAS	FOR COMPACTION DUST SUPPRESSION	10000 GALLONS 2000 GALLONS 12000 GALLONS
REVEGETATION OF ENTIRE DISTURBANCE AREA - 0.52 ACRES	SEED APPLICATION (23 LBS PLS/ACRE) 13 LBS PLS	FERTILIZER APPLICATION (92.5 LBS NUTRIENT/ACRE) 48.1 LBS	MULCH APPLICATION (3000 LBS/ACRE) 1560 LBS

LANDOWNER:
T5S, R16E, NW 1/4 of Section 21

U.S. Government
Custer National Forest
U.S. Forest Service
c/o George Weldon
Box 3420, Route 2
Red Lodge, MT 59068
Phone: 406/446-2103

MINERAL CLAIMANT:
Unpatented Lode Claims
Named Nate 1 through 21
Chrome Corp. International
c/o John Sellar
Vice-President-Operations
12640 W. Cedar Drive
Suite B
Lakewood, CO 80228
Phone: 303/969-8903

SCALE IN FEET
CONTOUR INTERVAL – 2 FT

ADDITIONAL INFORMATION PERTAINING TO THIS SITE MAY EXIST IN THE DEPARTMENT OF STATE LANDS' FILES OR AT SPECTRUM ENGINEERING'S OFFICE. THIS MATERIAL IS AVAILABLE FOR REVIEW BY ANY INTERESTED PARTY

NOTICE

AN ABANDONED MINE UNDERLIES THIS SITE. MANY POTENTIAL HAZARDS EXIST. THE EXTENT OF THESE HAZARDS IS NOT FULLY KNOWN. CONTRACTORS AND OTHER PERSONS WORKING AT THE SITE SHALL APPRISE THEMSELVES OF THE CONDITIONS AND TAKE WHATEVER STEPS ARE DEEMED NECESSARY TO INSURE SAFETY WHILE PERFORMING THEIR DUTIES.

AS-BUILT DRAWING

SITE PLAN AND GENERAL LAYOUT

BENBOW MILL

SECTION 21, T5S, R16E
STILLWATER COUNTY, MONTANA

STATE OF MONTANA
DEPARTMENT OF STATE LANDS
ABANDONED MINE RECLAMATION BUREAU, RECLAMATION DIVISION

DATE: February 1989
DRAWN BY: LNR
CHECKED BY:
APPROVED BY:

NO	REVISIONS DATE	BY
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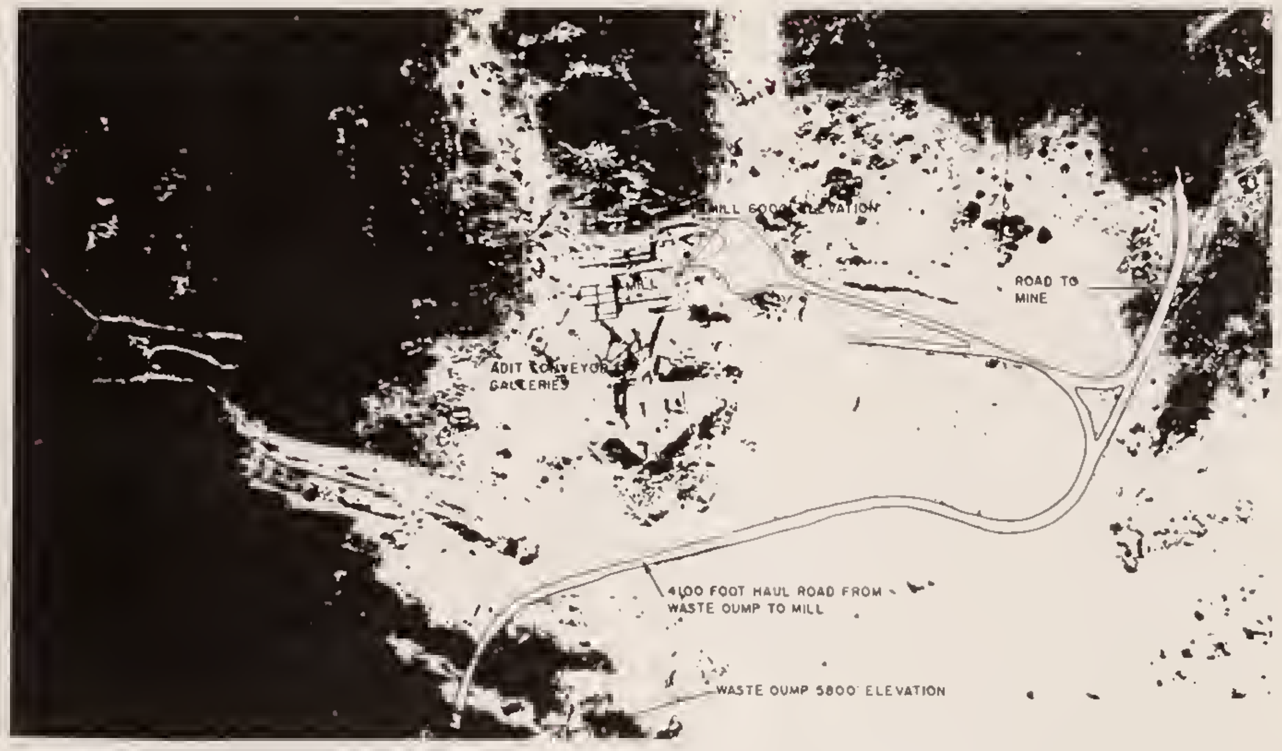
As-Built	12-20-90	DLO

SPECTRUM ENGINEERING
Mining and Civil Engineers
3302 4th AVE NORTH
BILLINGS, MONTANA

SHEET NO 1 of 2

① PICTURE 1 SHOWS THE MILL WASTE DUMP WITH LITTLE ROCKY CREEK RUNNING THROUGH IT.

② PICTURE 2 SHOWS SOME OF THE OEBRIS AT THE TOE OF THE DUMP IN LITTLE ROCKY CREEK.


MILL 6000 ELEVATION
ROAD TO MINE
ADIT & CONVEYOR GALLERIES
4100 FOOT HAUL ROAD FROM WASTE OUMP TO MILL
WASTE OUMP 5800 ELEVATION

③ PICTURE 3 IS AN AERIAL VIEW OF THE EDGE OF THE WASTE DUMP, ROAO FROM THE DUMP TO THE MILL, AND THE CONCRETE MILL FOUNDATION.

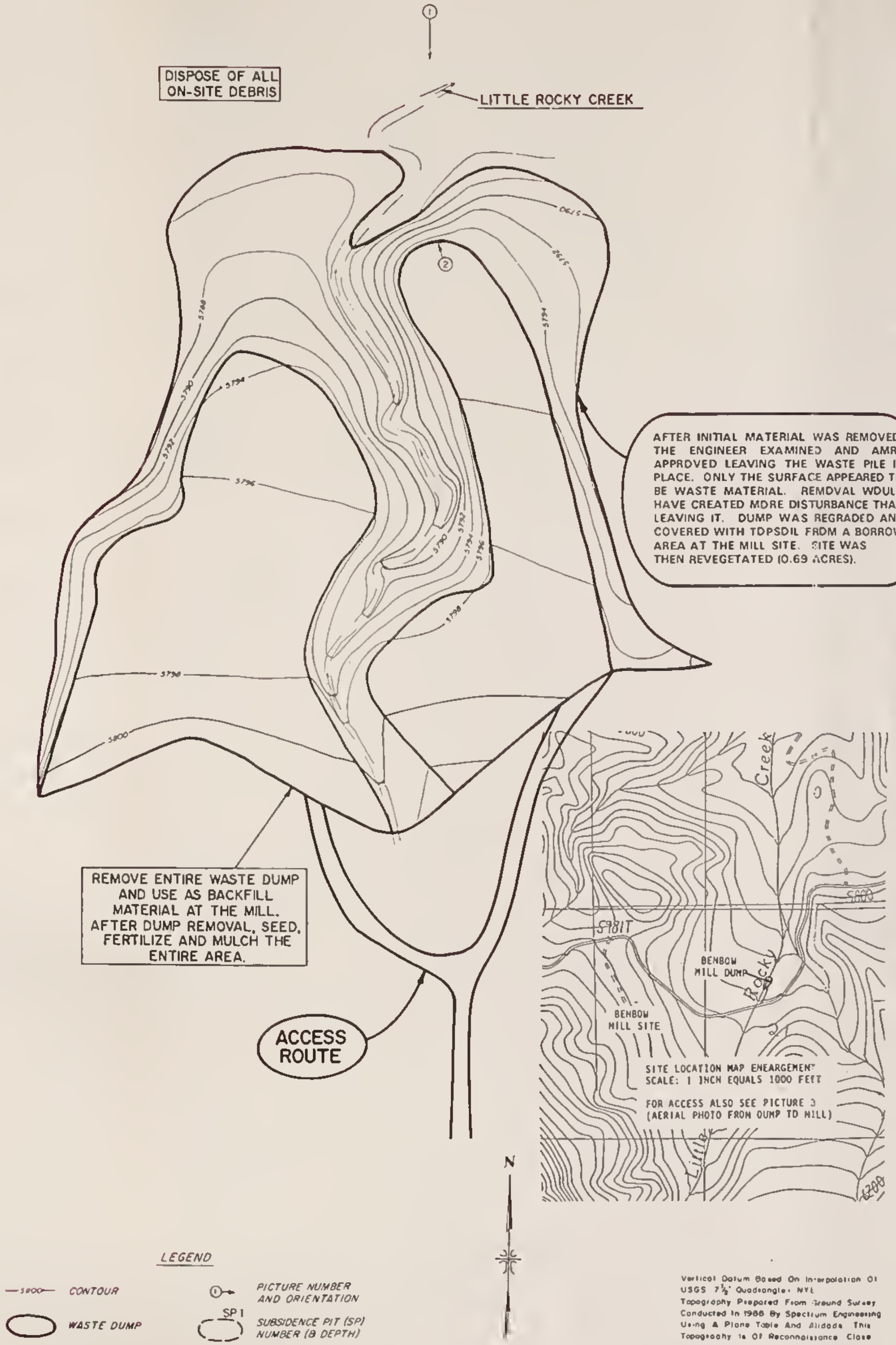
WORK DESCRIPTION

- REMOVE ENTIRE WASTE DUMP AND HAUL TO MILL FOUNDATION FOR BURIAL IN THE LOCATIONS NOTED ON SHEET 1 OF 2 (MILL AT 6000 FT ELEVATION AND WASTE OUMP AT 5800 FT ELEVATION - 200 FT UPHILL HAUL OVER A DISTANCE OF 4100 FEET). REGRADE THE AREA AFTER ORIGINAL TOPOGRAPHY IS ACHIEVED.

  DISTURBANCE TO LITTLE ROCKY CREEK SHOULD BE MINIMIZED. THE DUMP MATERIAL SHOULD BE PULLED BACK FROM BOTH EOGES OF THE CREEK WITH A BACKHOE. NO EQUIPMENT SHALL OPERATE WITHIN THE CREEK BOTTOM.
- DISPOSE OF ALL DEBRIS ON AND AROUND THE DUMP PRIOR TO DUMP REMOVAL AND REVEGETATION. ALL WOOD DEBRIS CAN BE BURNEO OR HAULEO TO AN APPROVED DISPOSAL SITE.
- PROVIOE WATER FOR ROAD & WORK AREA DUST SUPPRESSION.
- REVEGETATE (FERTILIZE, SEED AND MULCH) ALL DISTURBED AREAS.
- ADDITIONAL WORK DESCRIPTION DETAILS CAN BE FOUND IN THE SPECIAL PROVISIONS.

WORK SUMMARY TABLE

ITEM	DESCRIPTION	ACTION	QUANTITY
WASTE DUMP	LOCATED 4100 FEET FROM MILL ON BOTH SIDES OF LITTLE ROCKY CREEK COVERING AN AREA OF 150 FEET BY 180 FEET	REMOVE AND USE AS BACKFILL MATERIAL AT THE MILL FOUNDATION	3000 LCY
WATER	HAUL ROADS & WORK AREAS	DUST SUPPRESSION	2000 GALLONS
REVEGETATION OF ENTIRE DISTURBANCE AREA - 0.55 ACRES	SEED APPLICATION (23 LBS PLS/ACRE) 12.7 LBS PLS	FERTILIZER APPLICATION (92.5 LBS NUTRIENT/ACRE) 50.9 LBS	MULCH APPLICATION (3000 LBS/ACRE) 1650 LBS



DISPOSE OF ALL ON-SITE DEBRIS

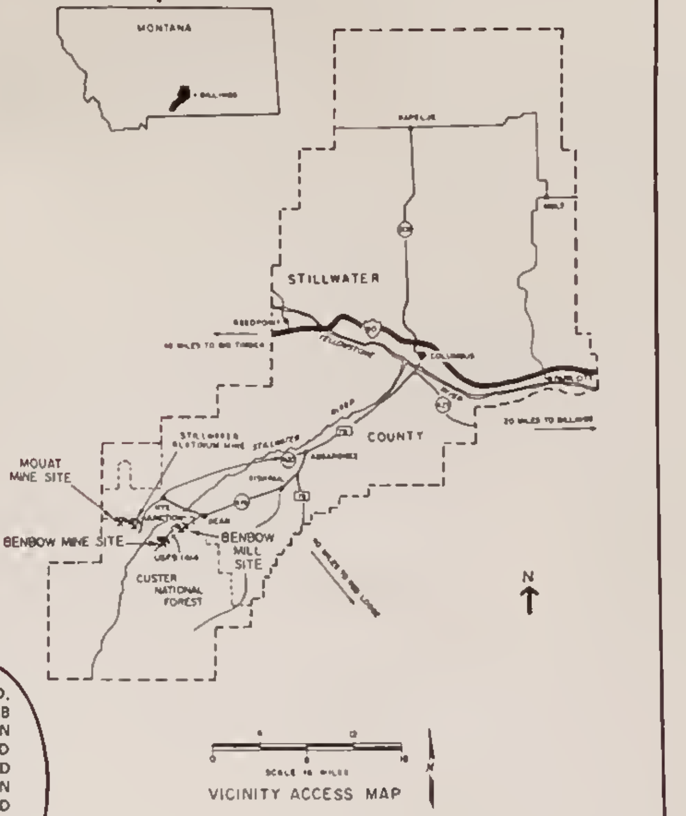
AFTER INITIAL MATERIAL WAS REMOVED, THE ENGINEER EXAMINED AND AMRB APPROVED LEAVING THE WASTE PILE IN PLACE. ONLY THE SURFACE APPEARED TO BE WASTE MATERIAL. REMOVAL WOULD HAVE CREATED MORE DISTURBANCE THAN LEAVING IT. DUMP WAS REGRADED AND COVERED WITH TOPSOIL FROM A BORROW AREA AT THE MILL SITE. SITE WAS THEN REVEGETATED (0.69 ACRES).

REMOVE ENTIRE WASTE DUMP AND USE AS BACKFILL MATERIAL AT THE MILL. AFTER DUMP REMOVAL, SEED, FERTILIZE AND MULCH THE ENTIRE AREA.

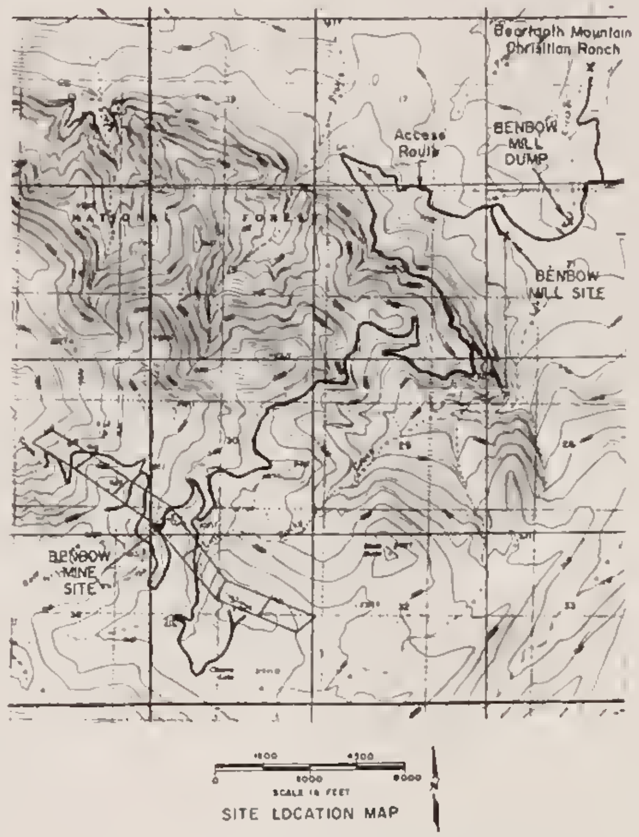
ACCESS ROUTE

SITE LOCATION MAP ENEARGEMENT
SCALE: 1 INCH EQUALS 1000 FEET

FOR ACCESS ALSO SEE PICTURE 3
(AERIAL PHOTO FROM OUMP TO MILL)



VICINITY ACCESS MAP



SITE LOCATION MAP

LEGEND

CONTOUR	PICTURE NUMBER AND ORIENTATION
WASTE DUMP	SP 1 SUBSIDENCE PIT (SP) NUMBER (8 DEPTH)
DRAINAGE	OPEN ADIT

SCALE IN FEET

Vertical Datum Based On Interpolation Of USGS 7½' Quadrangle. NYL Topography Prepared From Ground Survey Conducted In 1988 By Spectrum Engineering Using A Plane Table And Alidade. This Topography Is Of Reconnaissance Class And Has Not Been Field Checked

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AS-BUILT DRAWING

SITE PLAN AND GENERAL LAYOUT

BENBOW MILL

SECTION 21, T5S, R16E
STILLWATER COUNTY, MT.

STATE OF MONTANA
DEPARTMENT OF STATE LANDS
ABANDONED MINE RECLAMATION BUREAU, RECLAMATION DIVISION

DATE: FEBRUARY, 1989
DRAWN BY: LNR
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APPROVED BY:

REVISIONS NO	DATE	BY
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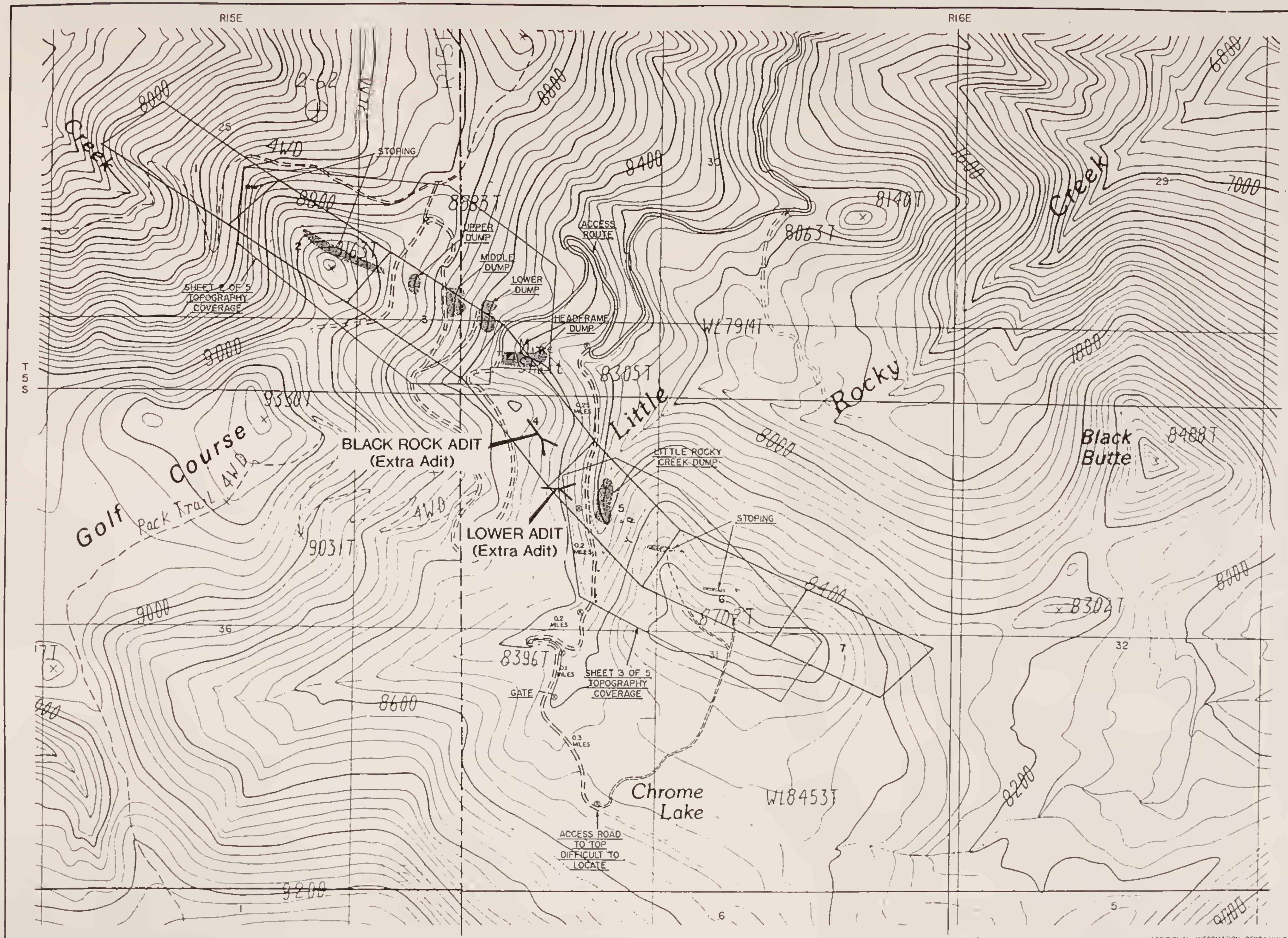
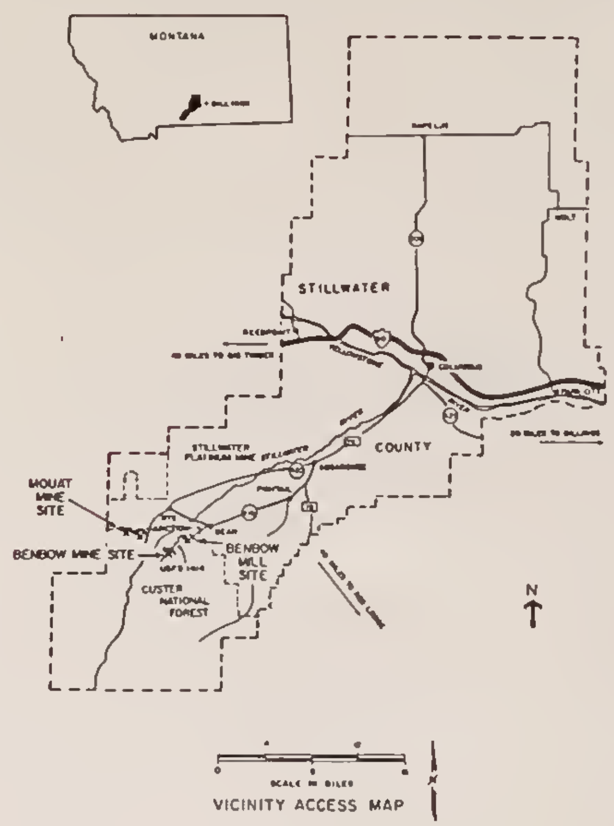
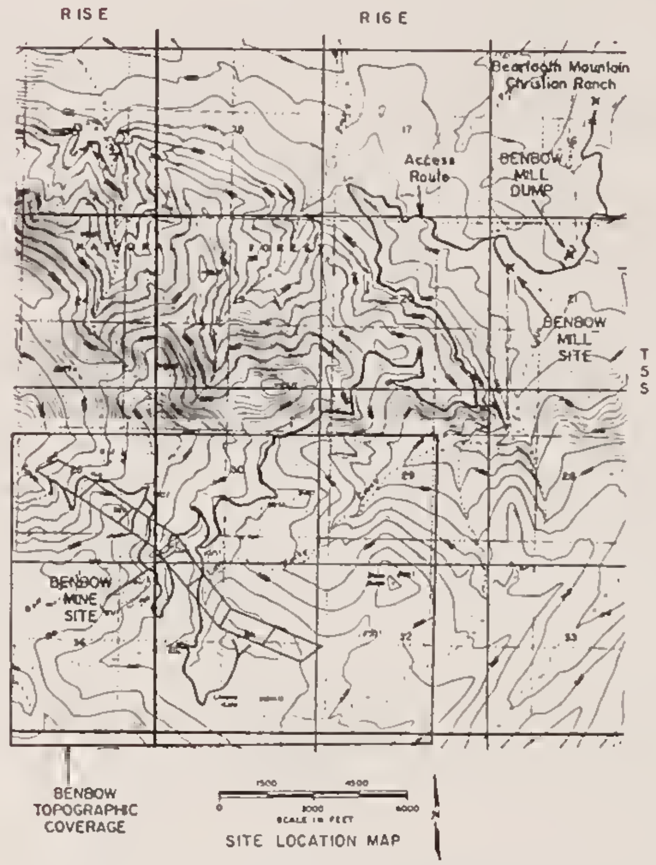
Mining and Civil Engineers
3302 4th AVE NORTH
BILLINGS, MONTANA

SHEET NO 2 of 2



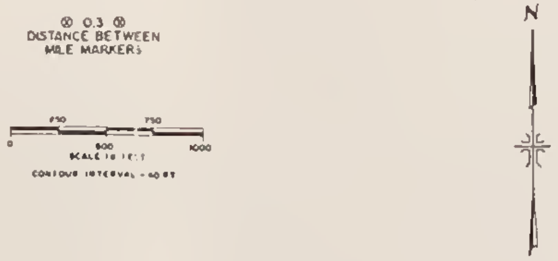


VICINITY ACCESS MAP



BENBOW TOPOGRAPHIC COVERAGE

SITE LOCATION MAP



AS–BUILT DRAWING

SITE PLAN AND GENERAL LAYOUT

BENBOW MINE SITE
SECTION 25, T5S, RI5E
SECTIONS 30 AND 31, T5S, RI6E
STILLWATER COUNTY, MONTANA

STATE OF MONTANA
DEPARTMENT OF STATE LANDS
ABANDONED MINE RECLAMATION BUREAU, RECLAMATION DIVISION

DATE: February 1989
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APPROVED BY:

NO	REVISIONS DATE	BY

SPECTRUM ENGINEERING
Mining and Civil Engineers
3302 4th AVE NORTH
BILLINGS, MONTANA

SHEET NO 1 of 5

PATENTED CLAIMS

1	BIG SEVEN CLAIM
2	MAJESTIC CLAIM
3	TITANIC CLAIM
4	BLACK ROCK CLAIM
5	ECLIPSE CLAIM
6	LUCKY STRIKE CLAIM
7	WAR EAGLE CLAIM

LANDOWNER:
T5S, R15E, Section 25
T5S, R16E, Section 30 & 31
7 Patented Claims

Benbow Mines Ltd.
Formerly Chromium
Products Corporation
c/o Ben Berg, Jr.
Box 550
Bozeman, MT 59715
Phone: 406/587-3181

LESSEE:
Chrome Corp. International
c/o John Sellar
Vice-President-Operations
12640 W. Cedar Drive
Suite B
Lakewood, CO 80228
Phone: 303/969-8903

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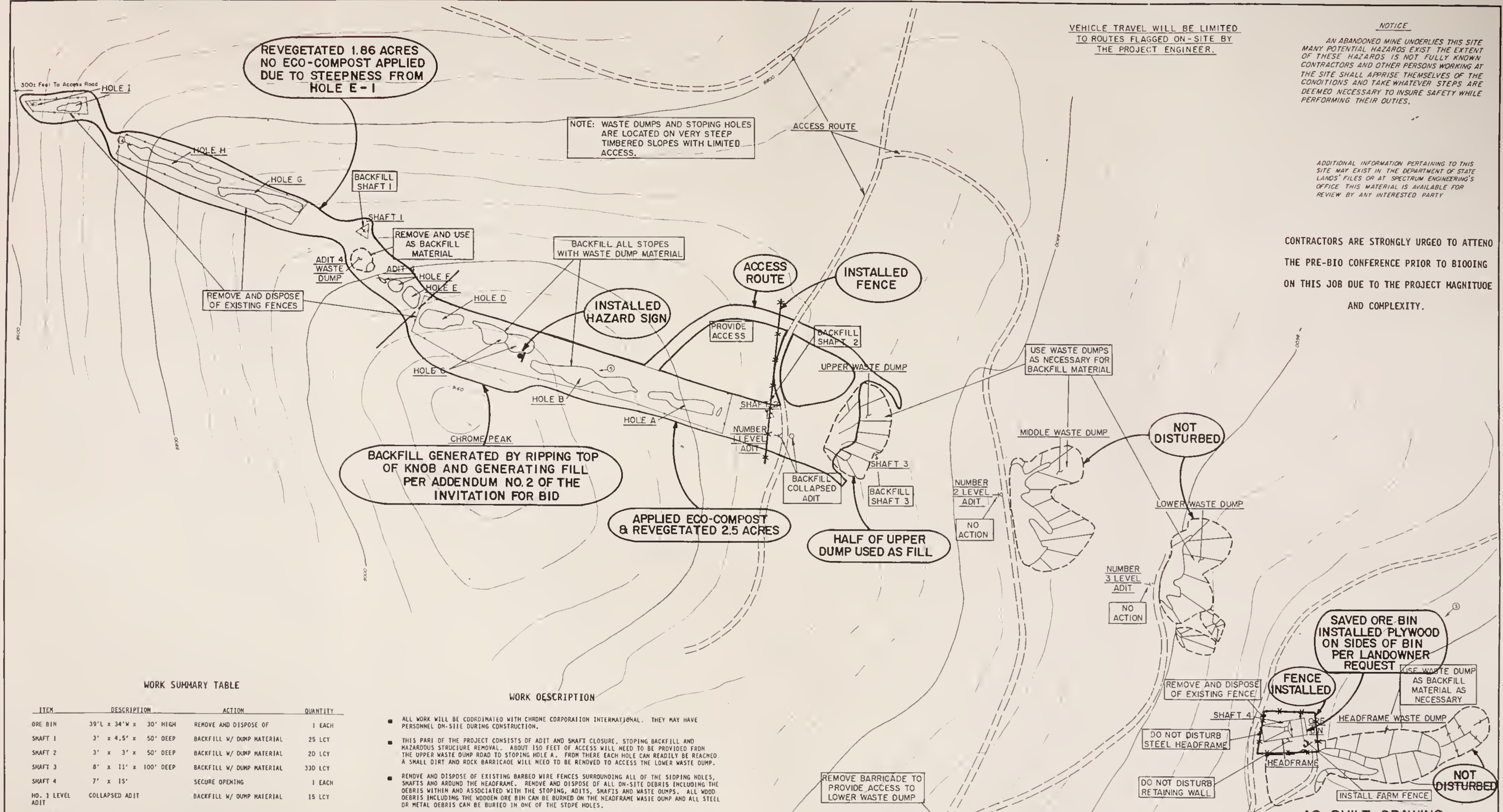
300± Feet To Access Road
HOLE I
REVEGETATED 1.86 ACRES NO ECO-COMPOST APPLIED DUE TO STEEPNESS FROM HOLE E-1
HOLE H
HOLE G
BACKFILL SHAFT 1
SHAFT 1
REMOVE AND USE AS BACKFILL MATERIAL
ADIT 4 WASTE DUMP
ADIT 4
HOLE F
HOLE E
HOLE D
REMOVE AND DISPOSE OF EXISTING FENCES
NOTE: WASTE DUMPS AND STOPING HOLES ARE LOCATED ON VERY STEEP TIMBERED SLOPES WITH LIMITED ACCESS.
BACKFILL ALL STOPES WITH WASTE DUMP MATERIAL
INSTALLED HAZARD SIGN
HOLE C
HOLE B
HOLE A
CHROME PEAK
BACKFILL GENERATED BY RIPPING TOP OF KNOB AND GENERATING FILL PER ADDENDUM NO. 2 OF THE INVITATION FOR BID
APPLIED ECO-COMPOST & REVEGETATED 2.5 ACRES
ACCESS ROUTE
ACCESS ROUTE
VEHICLE TRAVEL WILL BE LIMITED TO ROUTES FLAGGED ON-SITE BY THE PROJECT ENGINEER.
INSTALLED FENCE
PROVIDE ACCESS
BACKFILL SHAFT 2
UPPER WASTE DUMP
SHAFT 2
NUMBER 1 LEVEL ADIT
BACKFILL COLLAPSED ADIT
SHAFT 3
BACKFILL SHAFT 3
HALF OF UPPER DUMP USED AS FILL
USE WASTE DUMPS AS NECESSARY FOR BACKFILL MATERIAL
MIDDLE WASTE DUMP
NOT DISTURBED
NUMBER 2 LEVEL ADIT
NO ACTION
LOWER WASTE DUMP
NUMBER 3 LEVEL ADIT
NO ACTION
SAVED ORE BIN INSTALLED PLYWOOD ON SIDES OF BIN PER LANDOWNER REQUEST
FENCE INSTALLED
USE WASTE DUMP AS BACKFILL MATERIAL AS NECESSARY
REMOVE AND DISPOSE OF EXISTING FENCE
SHAFT 4
ORE BIN
HEADFRAME WASTE DUMP
DO NOT DISTURB STEEL HEADFRAME
HEADFRAME
DO NOT DISTURB RETAINING WALL
INSTALL FARM FENCE
NOT DISTURBED
REMOVE BARRICADE TO PROVIDE ACCESS TO LOWER WASTE DUMP
NOT REMOVED
DIRT AND ROCK BARRICADE
SEE SHEET 1 OF 5 FOR COMPLETE ACCESS ROUTE INFORMATION
N
SCALE IN FEET
CONTOUR INTERVAL = 40 FT
LEGEND
CONTOUR
WASTE DUMP
DRAINAGE
PICTURE NUMBER AND ORIENTATION
CLOSED ADIT
OPEN ADIT

NOTICE

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CONTRACTORS ARE STRONGLY URGED TO ATTEND THE PRE-BID CONFERENCE PRIOR TO BIDDING ON THIS JOB DUE TO THE PROJECT MAGNITUDE AND COMPLEXITY.

WORK SUMMARY TABLE

ITEM	DESCRIPTION	ACTION	QUANTITY
ORE BIN	39'L x 34'W x 30' HIGH	REMOVE AND DISPOSE OF	1 EACH
SHAFT 1	3' x 4.5' x 50' DEEP	BACKFILL W/ DUMP MATERIAL	25 LCY
SHAFT 2	3' x 3' x 50' DEEP	BACKFILL W/ DUMP MATERIAL	20 LCY
SHAFT 3	8' x 11' x 100' DEEP	BACKFILL W/ DUMP MATERIAL	330 LCY
SHAFT 4	7' x 15'	SECURE OPENING	1 EACH
NO. 1 LEVEL ADIT	COLLAPSED ADIT	BACKFILL W/ DUMP MATERIAL	15 LCY
STOPING			
HOLE A	15-32' x 158' x 6-100' DEEP	BACKFILL W/ DUMP MATERIAL	2510 LCY
HOLE B	12-46' x 250' x 6- 22' DEEP	BACKFILL W/ DUMP MATERIAL	4000 LCY
HOLE C	9-42' x 155' x 12- 60' DEEP	BACKFILL W/ DUMP MATERIAL	6210 LCY
HOLE D	25-42' x 100' x 20- 35' DEEP	BACKFILL W/ DUMP MATERIAL	3550 LCY
HOLE E	40' x 44' x 10' DEEP	BACKFILL W/ DUMP MATERIAL	1550 LCY
HOLE F	32' x 38' x 10' DEEP	BACKFILL W/ DUMP MATERIAL	820 LCY
HOLE G	10-23' x 204' x 8- 13' DEEP	BACKFILL W/ DUMP MATERIAL	1200 LCY
HOLE H	14-30' x 234' x 12- 25' DEEP	BACKFILL W/ DUMP MATERIAL	130 LCY
HOLE I	7-20' x 60' x 10' DEEP	BACKFILL W/ DUMP MATERIAL	450 LCY
TOTAL	WASTE DUMP VOLUME	TO BE BACKFILLED	20810 LCY
WASTE DUMPS	ADIT 4 DUMP	USE AS BACKFILL MATERIAL	250 LCY
	UPPER DUMP	USE AS BACKFILL MATERIAL	4600 LCY
	MIDDLE DUMP	USE AS BACKFILL MATERIAL	11800 LCY
	LOWER DUMP	USE AS BACKFILL MATERIAL	5200 LCY
FARM FENCE	FARM FENCE TYPE F-4H	INSTALL AROUND HEADFRAME	370 LIN FT
	DOUBLE PANEL	4 CORNERS & ELEV. CHANGE	5 EACH
	SINGLE PANEL	DIRECTION & ELEV. CHANGE	2 EACH
WATER	HAUL ROAD & WORK AREA	DUST SUPPRESSION	10000 GALLONS

WORK DESCRIPTION

- ALL WORK WILL BE COORDINATED WITH CHROME CORPORATION INTERNATIONAL. THEY MAY HAVE PERSONNEL ON-SITE DURING CONSTRUCTION.
- THIS PART OF THE PROJECT CONSISTS OF ADIT AND SHAFT CLOSURE, STOPING BACKFILL AND HAZARDOUS STRUCTURE REMOVAL. ABOUT 150 FEET OF ACCESS WILL NEED TO BE PROVIDED FROM THE UPPER WASTE DUMP ROAD TO STOPING HOLE A. FROM THERE EACH HOLE CAN READILY BE REACHED. A SMALL DIRT AND ROCK BARRICADE WILL NEED TO BE REMOVED TO ACCESS THE LOWER WASTE DUMP.
- REMOVE AND DISPOSE OF EXISTING BARBED WIRE FENCES SURROUNDING ALL OF THE STOPING HOLES, SHAFTS AND AROUND THE HEADFRAME. REMOVE AND DISPOSE OF ALL ON-SITE DEBRIS INCLUDING THE DEBRIS WITHIN AND ASSOCIATED WITH THE STOPING, ADITS, SHAFTS AND WASTE DUMPS. ALL WOOD DEBRIS INCLUDING THE WOODEN ORE BIN CAN BE BURNED ON THE HEADFRAME WASTE DUMP AND ALL STEEL OR METAL DEBRIS CAN BE BURIED IN ONE OF THE STOPE HOLES.
- REMOVE AND DISPOSE OF THE WOODEN ORE BIN LOCATED ADJACENT TO THE STEEL HEADFRAME. THE SHAFT AT THE BASE OF THE STEEL HEADFRAME MUST BE SECURED. A 6" THICK CONCRETE SLAB OR 1/2 INCH STEEL PLATE SHALL BE PLACED OVER THE SHAFT ENTRANCE. THE CONCRETE REBAR OR THE STEEL PLATE SHALL BE WELDED TO THE HEADFRAME STEEL STRUCTURE. A FARM FENCE SHALL BE PLACED AROUND THE REMAINING HEADFRAME.
- BACKFILL NUMBER 1 LEVEL ADIT AND SHAFTS 1, 2, 3 AND 4 WITH WASTE DUMP MATERIAL FROM THE ADIT 4 DUMP AND THE UPPER, MIDDLE AND LOWER WASTE DUMPS.
- BACKFILL STOPING HOLES A, B, C, D, E, F, G, H AND I (AVG. ELEV. 9080 FT) WITH WASTE DUMP MATERIAL FROM THE SMALL ADIT 4 WASTE DUMP, THE UPPER DUMP (AVG. ELEV. 8880 FT), THE MIDDLE DUMP (AVG. ELEV. 8720 FT), AND THE LOWER WASTE DUMP (AVG. ELEV. 8580). THE HEADFRAME WASTE DUMP CAN BE USED AS FILL MATERIAL IF NECESSARY. ALL MATERIAL MOVEMENT WILL BE LOADED, UPHILL HAULS WITH ELEVATION DIFFERENCES OF 200 TO 500 FEET.
- PROVIDE WATER FOR HAUL ROAD AND WORK AREA DUST SUPPRESSION, AND FOR ANY BURNING. THE WATER TRUCK MUST HAVE A CAPACITY OF 1000 GALLONS OR MORE. WATER IS AVAILABLE IN LITTLE ROCKY CREEK WHICH RUNS BY THE ECLIPSE ADIT (SEE SHEET 3 OF 5).
- NO REVEGETATION WILL BE REQUIRED AT THE BENBOW MINE SITE EXCEPT FOR UNAUTHORIZED CONTRACTOR DISTURBANCE.
- ADDITIONAL WORK DESCRIPTION DETAILS CAN BE FOUND IN THE SPECIAL PROVISIONS.

AS-BUILT DRAWING

SITE PLAN AND GENERAL LAYOUT

BENBOW MINE SITE
SECTION 25, T5S, R15E
SECTIONS 30 AND 31, T5S, R16E
STILLWATER COUNTY, MONTANA

STATE OF MONTANA
DEPARTMENT OF STATE LANDS
ABANDONED MINE RECLAMATION BUREAU, RECLAMATION DIVISION

DATE: February 1989
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REVISIONS NO.	DATE	BY
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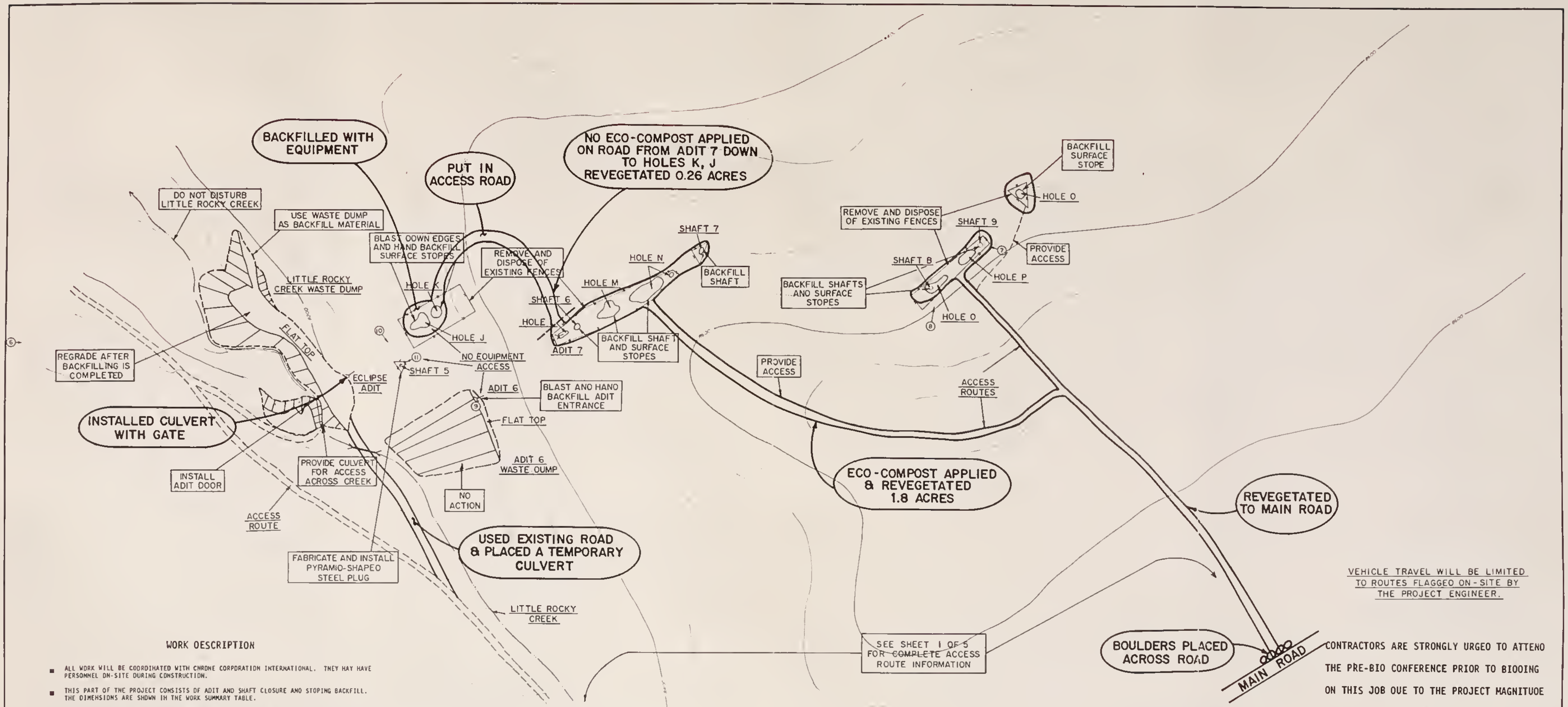
SPECTRUM ENGINEERING
Mining and Civil Engineers
3302 4th AVE NORTH
BILLINGS, MONTANA

SHEET NO. 2 of 5


BACKFILLED WITH EQUIPMENT
PUT IN ACCESS ROAD
NO ECO-COMPOST APPLIED ON ROAD FROM ADIT 7 DOWN TO HOLES K, J REVEGETATED 0.26 ACRES
BACKFILL SURFACE STOPE
HOLE O
DO NOT DISTURB LITTLE ROCKY CREEK
USE WASTE DUMP AS BACKFILL MATERIAL
BLAST DOWN EDGES AND HAND BACKFILL SURFACE STOPES
REMOVE AND DISPOSE OF EXISTING FENCES
SHAFT 7
HOLE N
REMOVE AND DISPOSE OF EXISTING FENCES
SHAFT 9
PROVIDE ACCESS
SHAFT 8
HOLE P
BACKFILL SHAFT
BACKFILL SHAFTS AND SURFACE STOPES
HOLE O
LITTLE ROCKY CREEK WASTE DUMP
HOLE K
HOLE M
SHAFT 6
HOLE
HOLE J
ADIT 7
BACKFILL SHAFT AND SURFACE STOPES
FLAT TOP
NO EQUIPMENT ACCESS
SHAFT 5
REGRADE AFTER BACKFILLING IS COMPLETED
ECLIPSE ADIT
ADIT 6
BLAST AND HAND BACKFILL ADIT ENTRANCE
PROVIDE ACCESS
ACCESS ROUTES
INSTALLED CULVERT WITH GATE
FLAT TOP
ADIT 6 WASTE DUMP
INSTALL ADIT DOOR
PROVIDE CULVERT FOR ACCESS ACROSS CREEK
NO ACTION
ECO-COMPOST APPLIED & REVEGETATED 1.8 ACRES
REVEGETATED TO MAIN ROAD
ACCESS ROUTE
USED EXISTING ROAD & PLACED A TEMPORARY CULVERT
FABRICATE AND INSTALL PYRAMID-SHAPED STEEL PLUG
LITTLE ROCKY CREEK
SEE SHEET 1 OF 5 FOR COMPLETE ACCESS ROUTE INFORMATION
BOULDERS PLACED ACROSS ROAD
MAIN ROAD
6
7
8
9
10
11

VEHICLE TRAVEL WILL BE LIMITED
TO ROUTES FLAGGED ON-SITE BY
THE PROJECT ENGINEER.

CONTRACTORS ARE STRONGLY URGED TO ATTEND THE PRE-BID CONFERENCE PRIOR TO BIDDING ON THIS JOB DUE TO THE PROJECT MAGNITUDE AND COMPLEXITY.

WORK DESCRIPTION

- ALL WORK WILL BE COORDINATED WITH CHRONE CORPORATION INTERNATIONAL. THEY MAY HAVE PERSONNEL ON-SITE DURING CONSTRUCTION.
- THIS PART OF THE PROJECT CONSISTS OF ADIT AND SHAFT CLOSURE AND STOPING BACKFILL. THE DIMENSIONS ARE SHOWN IN THE WORK SUMMARY TABLE.

……

- THE FIRST ITEM OF WORK AT THE BENBOW SITE SHALL BE TO CONSTRUCT AN INVERTED PYRAMID-SHAPED PLUG ON-SITE FOR SHAFT 5. THERE IS NO VEHICLE ACCESS TO SHAFT 5. AFTER FABRICATION, THE STATE OF MONTANA WILL BE NOTIFIED THAT THEIR HELICOPTER IS NEEDED. SOMETIME PRIOR TO JOB COMPLETION THE HELICOPTER WILL BE PROVIDED TO AIRLIFT THE PYRAMID TO THE SHAFT. THE CONTRACTOR WILL BE RESPONSIBLE FOR PLACEMENT INTO THE SHAFT. THE REBAR TO BE PLACED INSIDE THE PYRAMID WILL BE AIRLIFTED SEPARATELY FROM THE PYRAMID DUE TO HELICOPTER WEIGHT RESTRICTIONS. THE CONTRACTOR WILL THEN COMPLETE THE FABRICATION AND FILL THE PYRAMID WITH CONCRETE. THE CONTRACTOR WILL NOT BE ALLOWED TO ESTABLISH ANY FORM OF ACCESS ROAD TO THE SHAFT.

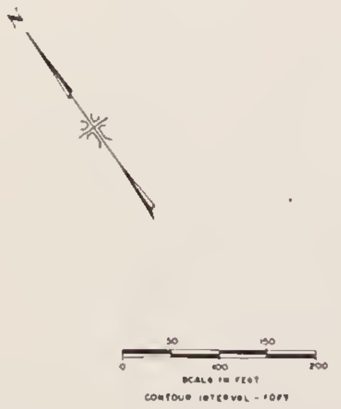
……

- REHABILITATE THE DOOR AND PROVIDE & INSTALL A LOCK ON THE ENTRANCE TO THE ECLIPSE ADIT.
- REMOVE AND DISPOSE OF EXISTING BARBED WIRE FENCES SURROUNDING ALL OF THE STOPING HOLES AND SHAFTS. REMOVE AND DISPOSE OF ALL ON-SITE DEBRIS INCLUDING THE DEBRIS WITHIN AND ASSOCIATED WITH THE STOPING, ADITS, SHAFTS AND WASTE DUMPS.
- DRILL AND BLAST ADIT 6 CLOSED AND HAND BACKFILL THE REMAINING DEPRESSION.
- DRILL AND BLAST DOWN THE SIDES OF STOPING HOLES J AND K. SOME HAND WORK WILL BE NECESSARY TO REDUCE ANY REMAINING HAZARDS. DRILLING EQUIPMENT OR AIR HOSES AND JACKLEG MUST BE HAND CARRIED TO THE SITE. THERE IS NO EQUIPMENT ACCESS.
- BACKFILL SHAFTS 6, 7, 8 AND 9 AND STOPING HOLES L, M, N, O, P AND Q WITH WASTE DUMP MATERIAL FROM LITTLE ROCKY CREEK DUMP IN FRONT OF THE ECLIPSE ADIT. THERE IS VEHICLE ACCESS TO THESE FEATURES. AN ACCESS ROAD WILL NEED TO BE PROVIDED TO REACH SHAFTS 6 AND 7 AND STOPING HOLES L, M AND N.
- A 30 FOOT, 24 INCH DIAMETER CULVERT MUST BE PROVIDED AND PLACED INTO LITTLE ROCKY CREEK TO ACCESS THE WASTE DUMP AND THE ECLIPSE ADIT. THE CULVERT WILL BE REMOVED UPON JOB COMPLETION AND REMAIN THE PROPERTY OF THE CONTRACTOR.
- PROVIDE WATER FOR HAUL ROAD AND WORK AREA DUST SUPPRESSION, AND FOR ANY BURNING. THE WATER TRUCK MUST HAVE A CAPACITY OF 1000 GALLONS OR MORE. WATER MAY BE AVAILABLE IN LITTLE ROCKY CREEK WHICH RUNS BY THE ECLIPSE ADIT.
- NO REVEGETATION WILL BE REQUIRED AT THE BENBOW MINE SITE EXCEPT FOR UNAUTHORIZED CONTRACTOR DISTURBANCE. THE LITTLE ROCKY CREEK DUMP WILL NEED TO BE REGRADED AFTER ALL BACKFILLING OPERATIONS ARE COMPLETED. LITTLE ROCKY CREEK CAN NOT BE DISTURBED.
- ADDITIONAL WORK DESCRIPTION DETAILS CAN BE FOUND IN THE SPECIAL PROVISIONS.

WORK SUMMARY TABLE

ITEM	DESCRIPTION	ACTION	QUANTITY
ECLIPSE ADIT	5'W x 6'H OPENING	INSTALL LOCKING ADIT DOOR	1 EACH
HELICOPTER	MOVE STEEL PYRAMID PLUG TO SHAFT 5	AIRLIFTED TO SHAFT WITH CONTRACTOR PLACEMENT	
SHAFT 5	3.5' x 7.5' x 100' DEEP	FABRICATE AND INSTALL INVERTED PYRAMID-SHAPED PLUG	1 EACH
ADIT 6	5'W x 6'H OPENING x 10'D	BLAST AND HAND BACKFILL	10 LCY
STOPING			
HOLE J	14-30' x ' x 4-10' DEEP	BLAST DOWN STOPE EDGES HAND BACKFILL	100 LCY 25 LCY
HOLE K	15' x 25' x 30' DEEP	BLAST DOWN STOPE EDGES HAND BACKFILL	260 LCY 40 LCY
SHAFT 6	9.5' x 10.5' x 100' DEEP	BACKFILL W/ DUMP MATERIAL	370 LCY
SHAFT 7	8' x 13' x 100' DEEP	BACKFILL W/ DUMP MATERIAL	385 LCY
SHAFT 8	8' x 8' x 100' DEEP	BACKFILL W/ DUMP MATERIAL	240 LCY
SHAFT 9	9' x 12' x 100' DEEP	BACKFILL W/ DUMP MATERIAL	400 LCY
STOPING			
HOLE L	12' x 25' x 0- 7' DEEP	BACKFILL W/ DUMP MATERIAL	50 LCY
HOLE M	9-33' x 50' x 0-17' DEEP	BACKFILL W/ DUMP MATERIAL	600 LCY
HOLE N	10-33' x 115' x 8-17' DEEP	BACKFILL W/ DUMP MATERIAL	1260 LCY
HOLE O	8-20' x 57' x 7-18' DEEP	BACKFILL W/ DUMP MATERIAL	370 LCY
HOLE P	20' x 38' x 40' DEEP	BACKFILL W/ DUMP MATERIAL	1130 LCY
HOLE Q	14' x 20' x 17' DEEP	BACKFILL W/ DUMP MATERIAL	60 LCY
WATER	HAUL ROAD & WORK AREA	DUST SUPPRESSION	10000 GALLONS

Vertical Datum Based On Interpolation Of
USGS 7½' Quadrangle
Topography Prepared From Ground Survey
Conducted In 1988 By Spectrum Engineering
Using A Plane Table And Alidade. This
Topography Is Of Reconnaissance Class
And Has Not Been Field Checked



ADDITIONAL INFORMATION PERTAINING TO THIS SITE MAY EXIST IN THE DEPARTMENT OF STATE LANDS' FILES OR AT SPECTRUM ENGINEERING'S OFFICE. THIS MATERIAL IS AVAILABLE FOR REVIEW BY ANY INTERESTED PARTY

LEGEND

—8400—	CONTOUR	①→	PICTURE NUMBER AND ORIENTATION
▨	WASTE DUMP	—⊀	CLOSED ADIT
— · —	DRAINAGE	—<	OPEN ADIT

NOTICE

AN ABANDONED MINE UNDERLIES THIS SITE. MANY POTENTIAL HAZARDS EXIST. THE EXTENT OF THESE HAZARDS IS NOT FULLY KNOWN. CONTRACTORS AND OTHER PERSONS WORKING AT THE SITE SHALL APPRISE THEMSELVES OF THE CONDITIONS AND TAKE WHATEVER STEPS ARE DEEMED NECESSARY TO INSURE SAFETY WHILE PERFORMING THEIR DUTIES.

AS-BUILT DRAWING

SITE PLAN AND GENERAL LAYOUT

BENBOW MINE SITE
SECTION 25, T5S, R15E
SECTIONS 30 AND 31, T5S, R16E
STILLWATER COUNTY, MONTANA

STATE OF MONTANA
DEPARTMENT OF STATE LANDS
ABANDONED MINE RECLAMATION BUREAU, RECLAMATION DIVISION

DATE: FEBRUARY, 1989
DRAWN BY: LNR
CHECKED BY:
APPROVED BY:

REVISIONS NO	DATE	BY
1	3/1990	LNR
2	4/30/90	LNR
As-Built	12-20-90	DLO

SPECTRUM ENGINEERING
Mining and Civil Engineers
3302 4th AVE NORTH
BILLINGS, MONTANA

SHEET NO. 3 of 5

ATTACHMENT 7

PHOTOGRAPHS/SLIDES

PHOTO LISTING

PHOTO LOCATION MAPS

PHOTOS/SLIDES

BENBOW PROJECT
PHOTO & SLIDE DESCRIPTIONS

ASSIGNED NUMBER	DATE TAKEN	SUBJECT OR COMMENTS
EQUIPMENT USED ON PROJECT (BENBOW MINE AND MILL SITES)		
1	07-06-90	1948 Kenworth service truck.
2	07-06-90	1980 Autocar Constructor dump truck.
3	07-10-90	1953 Mack 3800 gallon water truck.
4	07-16-90	Cat D-9G dozer and lowboy.
5	07-05-90	Cat D-7E dozer on top of Benbow Mine.
6	07-05-90	1978 John Deere 750 dozer.
7	07-05-90	1980 International 530 loader.
8	07-17-90	1968 Terex TS-14 scraper and loader at upper dump.
9	07-27-90	1979 Cat 130G motor grader.
10	07-10-90	125 Ingersoll-Rand compressor.
11	08-24-90	1978 P&H 750 backhoe spreading borrow on Little Rocky Creek.
12	09-18-90	JD dozer pulling compost truck spreading compost on Holes O and P.
13	09-10-90	Truckload of compost from Eco-Compost out of Missoula.
14	09-10-90	Truck unloading compost from Eco-Compost out of Missoula.
15	09-18-90	Hydroseed and mulch truck from H&S Landscaping on Holes O and P.
BENBOW MILL SITE (MILL SITE PLAN SHEET 1 OF 2)		
16	09-02-88	Helicopter view of mill complex pre-construction.
17	09-02-88	Helicopter view of S-1 and conveyor gallery.
18	09-02-88	Helicopter view of mill complex pre-construction.
19	09-21-90	Helicopter view of mill complex after construction.
20	09-21-90	Helicopter view of mill complex after construction.
21	09-02-88	Pre-construction view of pillar area.
22	09-02-88	Pre-construction view of pillar area.

BENBOW PROJECT
PHOTO & SLIDE DESCRIPTIONS

ASSIGNED NUMBER	DATE TAKEN	SUBJECT OR COMMENTS
23	09-02-88	Pre-construction view of conveyor Gallery #1.
24	08-09-90	Working on conveyor Galleries #1 & #3.
25	09-02-88	Pre-construction view of conveyor Gallery #3.
26	09-02-88	Pre-construction view of conveyor Gallery #3.
27	08-24-90	Finish grade on the 3 conveyor galleries.
28	08-23-90	Filling concrete pillars.
29	09-21-90	Hydroseed and mulch on mill complex conveyor galleries.
30	09-21-90	Hydroseed and mulch on mill complex conveyor galleries.
31	07-22-88	Pre-construction view of S-1 concrete cylinder.
32	08-24-90	Finished grade at S-1 concrete cylinder.
33	09-02-88	Pre-construction of the 20 ft high concrete wall.
34	08-24-90	Backfilled 20 ft high wall area.
35	09-02-88	Pre-construction view of Gallery Entrance #1.
36	09-02-88	Pre-construction view of Gallery Entrance #1.
37	08-09-90	Backfilling Gallery Entrance #1 with backhoe.
38	08-09-90	Backfilling Gallery Entrance #1 with backhoe.
39	09-02-88	Pre-construction Gallery Entrance #4.
40	08-24-90	Backfilled conveyor Gallery Entrance #4.
41	09-02-88	Pre-construction view of crusher foundation holes.
42	09-02-88	Pre-construction view of crusher foundation holes.
43	08-24-90	Filled crusher foundation holes.
44	08-24-90	Borrow area behind concrete mill site.
45	09-21-90	Back side of mill after hydroseeding and mulching.
46	09-21-90	Borrow area after hydroseeding and mulching.
47	09-02-88	Pre-construction view of S-2 concrete cylinder.

BENBOW PROJECT
PHOTO & SLIDE DESCRIPTIONS

ASSIGNED NUMBER	DATE TAKEN	SUBJECT OR COMMENTS
BENBOW MILL SITE (MILL SITE PLAN SHEET 2 OF 2)		
48	09-02-88	Pre-construction of waste dump on Little Rocky Creek.
49	09-02-88	Pre-construction of waste dump on Little Rocky Creek.
50	08-09-90	Pre-construction of waste dump on Little Rocky Creek.
51	08-21-90	Sloping waste dump at Little Rocky Creek.
52	09-21-90	Waste dump after hydroseeding and mulching.
BENBOW MINE SITE (MINE SITE PLAN SHEET 2 OF 5 ON CHROME PEAK)		
53	09-06-88	Pre-construction view of ore bin.
54	09-06-88	Pre-construction view of ore bin.
55	08-30-90	Installing plywood on ore bin.
56	08-30-90	Installing plywood on ore bin.
57	09-21-90	Helicopter view of head frame and ore bin.
58	10-04-90	Installed fence double panels at head frame.
59	10-04-90	Installed double panels at ore bin.
60	07-10-90	Rolling out cable on upper waste dump.
61	07-10-90	Loader and TS-14 scraper at upper waste dump.
62	08-10-90	Finish grade at Holes A and B from bottom.
63	08-10-90	Finish grade at Holes A and B from top.
64	07-23-90	Burning debris at upper dump.
65	07-18-90	D-9 dozer on upper waste dump.
66	08-10-90	View of upper waste dump after construction.
67	09-21-90	Helicopter view of upper waste dump after hydroseeding and mulching.
68	10-04-90	New fence on uphill side of road just below Holes A and B.

BENBOW PROJECT
PHOTO & SLIDE DESCRIPTIONS

ASSIGNED NUMBER	DATE TAKEN	SUBJECT OR COMMENTS
69	10-04-90	Single panel on fence between road and Holes A and B.
70	10-04-90	Working on single fence panel.
71	09-02-88	Pre-construction helicopter view of mine stoping.
72	09-02-88	Pre-construction helicopter view of mine stoping.
73	07-19-90	Working on pulley on top of Hole B.
74	07-19-90	D-7 dozer with pulley and cable to yo-yo equipment.
75	09-06-88	Pre-construction view of stoping Hole B.
76	07-05-90	Pre-construction Hole A from bottom.
77	09-06-88	Pre-construction view from top of Hole A.
78	07-17-90	Scraper in Hole A.
79	07-17-90	Truck and scraper in yo-yo work with pulley.
80	07-17-90	Dump truck in Hole A.
81	07-10-90	Cable and dump truck in Hole A.
82	07-10-90	Burning debris at Hole A.
83	07-06-90	Stoping hole between Hole A and B.
84	07-05-90	Pre-construction view of Hole B from bottom.
85	07-05-90	Pre-construction view of Hole B from top.
86	07-06-90	Dozer and scraper at Hole B.
87	07-06-90	Making scraper turn around above Hole B.
88	07-23-90	TS-14 scraper filling top of Hole B.
89	08-01-90	Top of Hole B finished after backfilling.
90	08-01-90	Top of Hole B finished after backfilling.
91	07-24-90	Pre-construction view of Shaft #2.
92	10-04-90	Steep slopes sign installed.

BENBOW PROJECT
PHOTO & SLIDE DESCRIPTIONS

ASSIGNED NUMBER	DATE TAKEN	SUBJECT OR COMMENTS
93	08-10-90	Graded area above Hole B ready for seeding.
94	07-16-90	D-9 dozer ripping at Hole C.
95	07-16-90	D-9 dozer at Hole C.
96	07-05-90	D-7 dozer at Hole C.
97	07-10-90	Drilling to blast rock at Hole C.
98	07-10-90	Explosives in place at Hole C.
99	07-10-90	All ready to blast at Hole C.
100	07-10-90	The blast at Hole C.
101	07-10-90	After the blast at Hole C.
102	08-01-90	Finished Hole D looking down.
103	08-10-90	Finished Hole D looking down.
104	08-10-90	Looking up at Hole C after backfilling.
105	09-21-90	Hydroseed and mulch on Hole C.
106	09-21-90	Hydroseed and mulch on Holes E and F.
107	07-05-90	Pre-construction view of Hole D from bottom.
108	07-21-90	JD dozer backfilling at Hole D in the fog.
109	07-23-90	Sloping at Holes E and F with dozer.
110	08-01-90	Finished Holes E and F.
111	07-21-90	D-9 dozer working on Hole G in the fog.
112	07-23-90	Sloping bottom of Hole G.
113	07-18-90	Pre-construction view of Hole I from top.
114	07-23-90	Burning debris at adit (part of Hole I).

BENBOW PROJECT
PHOTO & SLIDE DESCRIPTIONS

ASSIGNED NUMBER	DATE TAKEN	SUBJECT OR COMMENTS
BENBOW MINE SITE (MINE SITE PLAN SHEET 1 OF 5 EXTRA WORK-CHANGED ORDERED)		
115	08-06-90	Pre-construction view of Black Rock Adit on Black Rock Claim.
116	08-06-90	Pre-construction view of Black Rock Adit.
117	08-06-90	Pre-construction view of Black Rock Adit.
118	08-06-90	Blasted Black Rock Adit.
119	08-06-90	Pre-construction view of Lower Adit on Eclipse Claim.
120	08-06-90	After second blast on Lower Adit.
121	08-06-90	After third blast on Lower Adit.
BENBOW MINE SITE (MINE SITE PLAN SHEET 3 OF 5 ON LITTLE ROCKY CREEK SIDE)		
122	10-04-90	Pre-construction view of Shaft #5.
123	09-06-88	Pre-construction view of Shaft #5.
124	07-30-90	Getting ready for plug for Shaft #5.
125	07-31-90	Shaft #5 ready for plug.
126	08-10-90	Pyramid-shaped plug for Shaft #5.
127	08-10-90	Pyramid-shaped plug for Shaft #5.
128	08-10-90	Pyramid-shaped plug being filled with foam.
129	08-10-90	Pyramid-shaped plug being filled with foam.
130	08-10-90	Pyramid-shaped plug being filled with foam.
131	08-10-90	Pyramid-shaped plug after being filled with foam.
132	09-21-90	Helicopter and pyramid plug.
133	09-21-90	Helicopter setting pyramid plug in Shaft #5.
134	09-21-90	Helicopter with pyramid plug.
135	09-21-90	Pyramid plug in place & covered with 2 feet of dirt at Shaft #5.
136	07-25-90	Culvert area at Little Rocky Creek.

BENBOW PROJECT
PHOTO & SLIDE DESCRIPTIONS

ASSIGNED NUMBER	DATE TAKEN	SUBJECT OR COMMENTS
137	07-25-90	Culvert laid in place at Little Rocky Creek.
138	08-10-90	Access road to Little Rocky waste dump.
139	09-06-88	Pre-construction view of Eclipse Adit.
140	08-03-90	Cleaning out Eclipse Adit.
141	08-03-90	Eclipse Adit after being cleaned out.
142	08-07-90	Culvert installed in Eclipse Adit.
143	08-07-90	Backfilling around culvert in Eclipse Adit.
144	10-03-90	Gate and lock on culvert at Eclipse Adit.
145	07-24-90	Pre-construction view of Adit #6.
146	08-10-90	Drilling to blast at Adit #6.
147	08-10-90	Blasting at Adit #6.
148	09-21-90	Access road to Side #2 after hydroseeding.
149	08-10-90	Pre-construction of road to Holes J and K.
150	08-10-90	Access road to Holes J and K.
151	09-18-90	Spreading fertilizer at Hole Q.
152	08-17-90	Blasted sides on Hole J.
153	07-24-90	Pre-construction view of Hole K.
154	08-10-90	Hole K being filled in.
155	08-17-90	Hole K filled in.
156	07-24-90	Pre-construction view of Shaft #6 and Hole L.
157	07-30-90	Filling Shaft #6 and Hole L.
158	08-07-90	Burning trees on Side #2.
159	08-07-90	Fire safety.
160	07-24-90	Pre-construction view of Hole M.
161	07-24-90	Pre-construction view of Hole N.

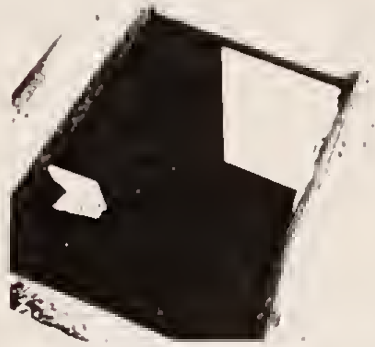
BENBOW PROJECT
PHOTO & SLIDE DESCRIPTIONS

ASSIGNED NUMBER	DATE TAKEN	SUBJECT OR COMMENTS
162	08-10-90	Holes M and N after backfilling.
163	08-10-90	Holes M and N after backfilling.
164	09-21-90	Helicopter view of Side #2 complete.
165	09-06-88	Pre-construction view of Hole M and Shaft #6.
166	07-26-90	Hole O with debris cleaned out & ready for fill.
167	07-25-90	Pre-construction view of Hole P and Shaft #9.
168	07-27-90	Truck #2 dumping in Hole P.
169	07-25-90	Pre-construction view of Hole Q.
170	08-10-90	Hole L, M, N, and Shafts 6 and 7 after backfilling.
171	09-18-90	Spreading compost at Holes O and P.
172	09-21-90	Helicopter view of Side #2 complete.
173	10-04-90	Helicopter view of Hole N complete.

① PICTURE 1 SHOWS THE ENTRANCE TO ADIT CONVEYOR GALLERY 3 AND THE CONCRETE PILLARS

② PICTURE 2 IS A VIEW OF A CONCRETE WALL WITH A 20 FOOT VERTICAL DROP

③ PICTURE 3 SHOWS HOLE 1 OF THE CRUSHER FOUNDATION



④ PICTURE 4 IS LOOKING DOWN HOLE 3 IN THE CRUSHER CONVEYOR GALLERY

⑤ PICTURE 5 SHOWS ADIT CONVEYOR GALLERIES 1 AND 2

⑥ PICTURE 6 SHOWS ADIT CONVEYOR GALLERY 3

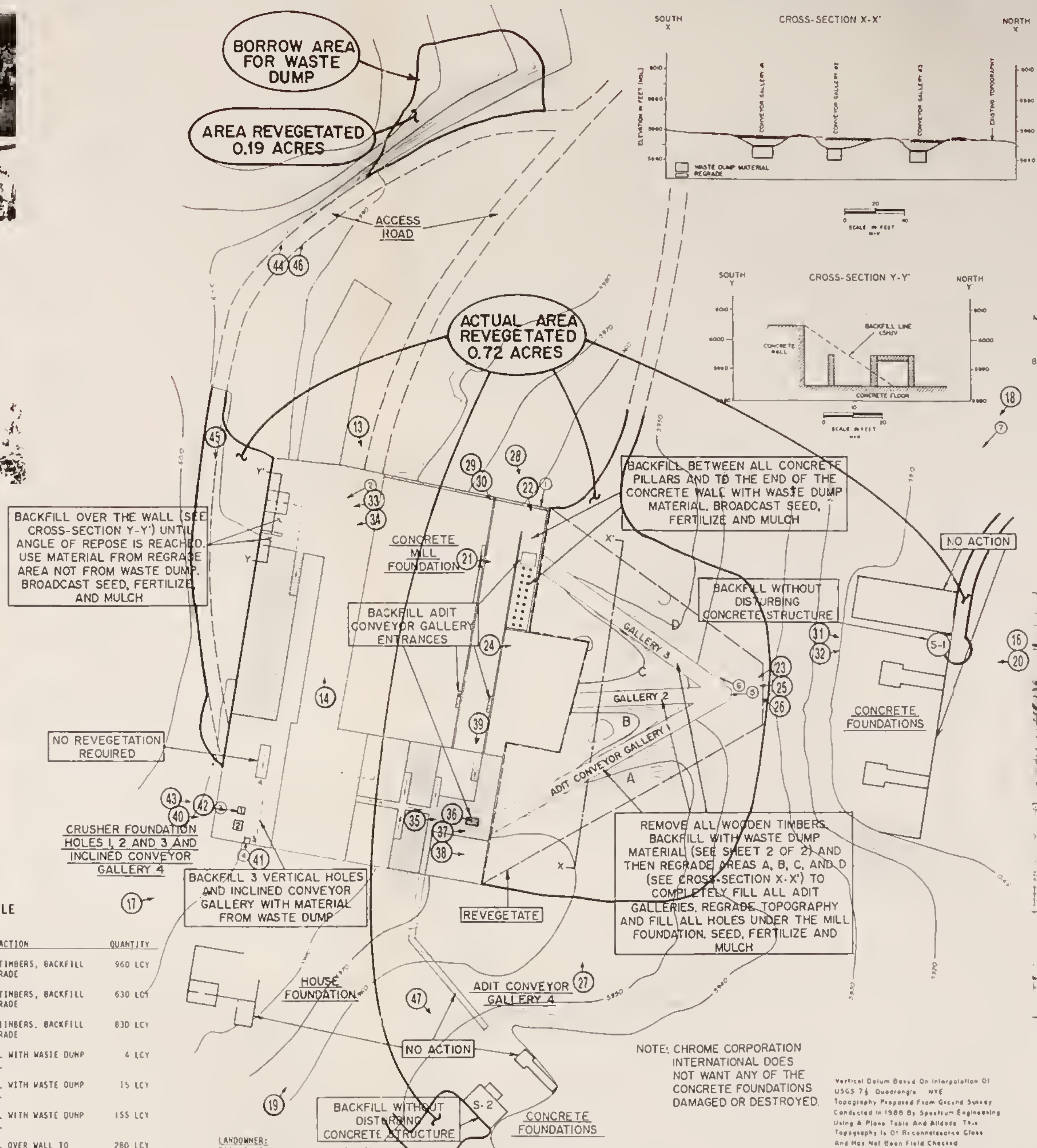
⑦ PICTURE 7 IS A HELICOPTER VIEW OF THE MILL COMPLEX

WORK DESCRIPTION

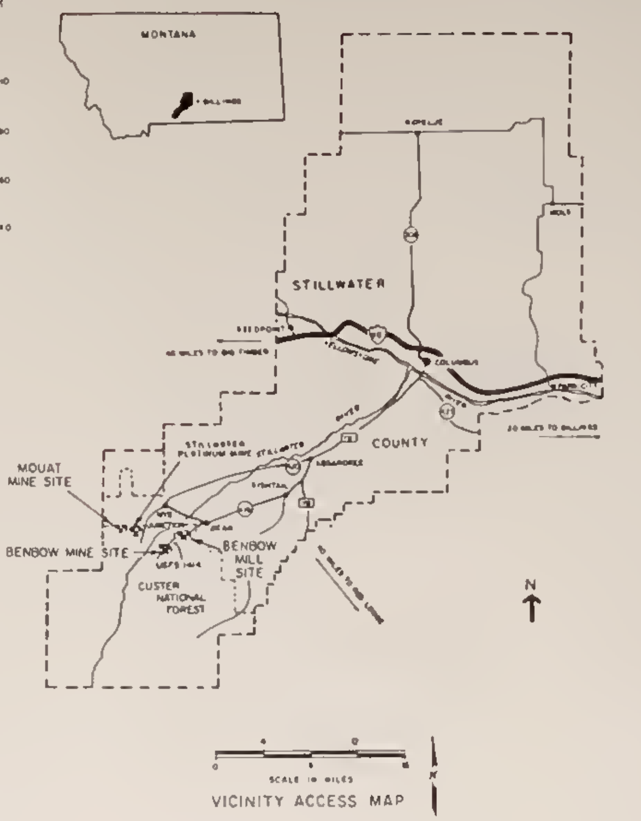
- REMOVE ALL TIMBERS FROM ADIT CONVEYOR GALLERIES 1, 2, AND 3. BACKFILL THE 3 CONVEYOR GALLERIES WITH FILL MATERIAL TO COME FROM WASTE DUMP LOCATED 4100 FEET TO THE NORTH BY ROAD (MILL AT 6000 FT ELEV. & WASTE DUMP AT 5800 FT ELEV.). REGRADE THE MOUNDS OF DIRT LABELED A, B, C, AND D ORIGINALLY TAKEN FROM THE CONVEYOR GALLERIES. THE REGRADE PROCEDURE IS SHOWN ON CROSS-SECTION X-X'.
- BACKFILL CRUSHER FOUNDATION HOLES LABELED 1, 2, AND 3 AND CONCRETE-LINED INCLINED CONVEYOR GALLERY (LABELED 4). BACKFILL BETWEEN CONCRETE PILLARS AND THE 3 ADIT CONVEYOR ENTRANCES. ALSO BACKFILL CONCRETE STRUCTURES S-1 AND S-2. FILL MATERIAL TO COME FROM THE WASTE DUMP AND FROM THE DIRT MOUNDS A OR D.
- BACKFILL AGAINST VERTICAL CONCRETE WALL WITH MATERIAL FROM THE MOUNDS OF DIRT LABELED A, B, C, AND D.
- DISPOSE OF ALL TIMBERS (AND OTHER DEBRIS) REMOVED FROM THE ADIT CONVEYOR GALLERIES AND MILL FOUNDATION BY BURNING OR HAULING TO AN APPROVED DISPOSAL SITE.
- PROVIDE WATER FOR BACKFILL COMPACTION, ROAD & WORK AREA DUST SUPPRESSION, AND FOR ANY BURNING.
- REVEGETATE (FERTILIZE, SEED AND MULCH) ALL DISTURBED AREAS.
- ADDITIONAL WORK DESCRIPTION DETAILS CAN BE FOUND IN THE SPECIAL PROVISIONS.

WORK SUMMARY TABLE

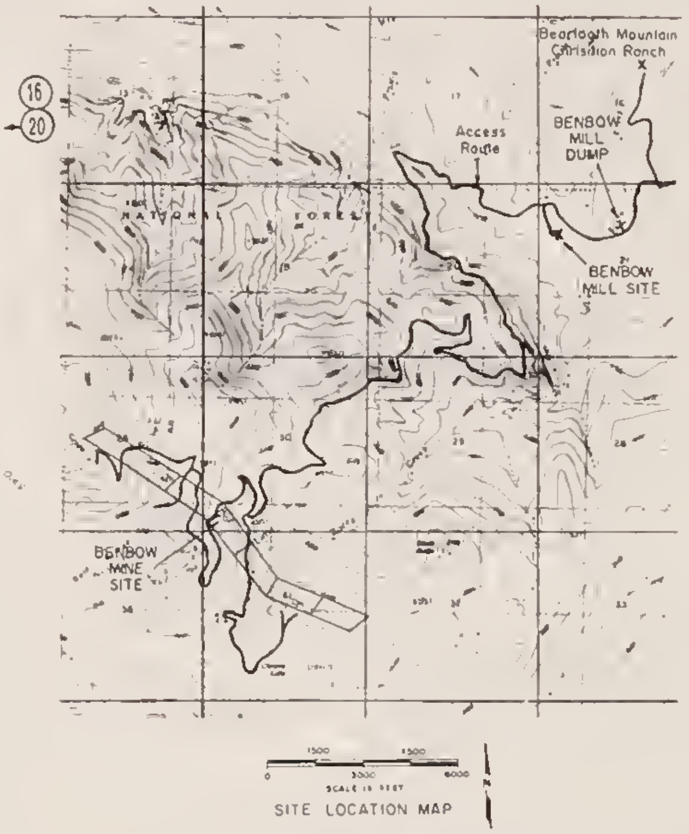
ITEM	DESCRIPTION	ACTION	QUANTITY
ADIT CONVEYOR GALLERY 1	10 FEET ACROSS BY 165 FEET LONG, UP TO 12 FT DEEP	REMOVE TIMBERS, BACKFILL AND REGRADE	960 LCY
ADIT CONVEYOR GALLERY 2	10 FEET ACROSS BY 107 FEET LONG, UP TO 12 FT DEEP	REMOVE TIMBERS, BACKFILL AND REGRADE	630 LCY
ADIT CONVEYOR GALLERY 3	10 FEET ACROSS BY 142 FEET LONG, UP TO 12 FT DEEP	REMOVE TIMBERS, BACKFILL AND REGRADE	830 LCY
CRUSHER FOUNDATION HOLE 1	4.1 FEET BY 4.1 FEET BY 6 FEET DEEP	BACKFILL WITH WASTE DUMP MATERIAL	4 LCY
CRUSHER FOUNDATION HOLE 2	5.6 FEET BY 7.3 FEET BY 10 FEET DEEP	BACKFILL WITH WASTE DUMP MATERIAL	15 LCY
CRUSHER FOUNDATION HOLE 3 & 4	INCLINED 66.9 FT BY 6.2 FEET WIDE BY 20 FT DEEP	BACKFILL WITH WASTE DUMP MATERIAL	155 LCY
VERTICAL WALL	20 FT HIGH BY 30 FEET OUT BY 25 FEET ACROSS	BACKFILL OVER WALL TO ANGLE OF REPOSE	280 LCY
CONCRETE PILLARS	12 FT HIGH BY 15 FEET ACROSS BY 60 FEET OUT	BACKFILL BETWEEN PILLARS AND TO THE END OF WALL	400 LCY
CONCRETE STRUCTURE S-1	14 FT HIGH BY 15 FEET DIA.	BACKFILL WITH MATERIAL FROM DIRT MOUNDS A OR D	80 LCY
CONCRETE STRUCTURE S-2	12.5 FT HIGH BY 15 FEET WIDE BY 25 FEET LONG	BACKFILL WITH MATERIAL FROM DIRT MOUNDS A OR D	170 LCY
ADIT ENTRANCES	WITHIN MILL FOUNDATION	BACKFILL WITH WASTE DUMP MATERIAL	50 LCY
WATER	ALL BACKFILL AREAS HAUL ROADS & WORK AREAS	FOR COMPACTION DUST SUPPRESSION	10000 GALLONS 2000 GALLONS 12000 GALLONS
REVEGETATION OF ENTIRE DISTURBANCE AREA - 0.52 ACRES	SEED APPLICATION (23 LBS PLS/ACRE) 13 LBS PLS	FERTILIZER APPLICATION (92.5 LBS NUTRIENT/ACRE) 48.1 LBS	MULCH APPLICATION (3000 LBS/ACRE) 1560 LBS


BORROW AREA FOR WASTE DUMP
AREA REVEGETATED 0.19 ACRES
ACCESS ROAD
44
46
ACTUAL AREA REVEGETATED 0.72 ACRES
45
13
BACKFILL OVER THE WALL (SEE CROSS-SECTION Y-Y') UNTIL ANGLE OF REPOSE IS REACHED. USE MATERIAL FROM REGRADE AREA NOT FROM WASTE DUMP. BROADCAST SEED, FERTILIZE AND MULCH
33
34
29
30
28
22
CONCRETE MILL FOUNDATION
21
BACKFILL BETWEEN ALL CONCRETE PILLARS AND TO THE END OF THE CONCRETE WALL WITH WASTE DUMP MATERIAL. BROADCAST SEED, FERTILIZE AND MULCH
NO ACTION
BACKFILL ADIT CONVEYOR GALLERY ENTRANCES
BACKFILL WITHOUT DISTURBING CONCRETE STRUCTURE
GALLERY 3
GALLERY 2
ADIT CONVEYOR GALLERY 1
A
B
C
D
X
X'
Y
Y'
31
32
S-1
16
20
18
23
25
26
24
14
39
CONCRETE FOUNDATIONS
NO REVEGETATION REQUIRED
43
40
42
41
CRUSHER FOUNDATION HOLES 1, 2 AND 3 AND INCLINED CONVEYOR GALLERY 4
35
36
37
38
REMOVE ALL WOODEN TIMBERS. BACKFILL WITH WASTE DUMP MATERIAL (SEE SHEET 2 OF 2) AND THEN REGRADE AREAS A, B, C, AND D (SEE CROSS-SECTION X-X') TO COMPLETELY FILL ALL ADIT GALLERIES. REGRADE TOPOGRAPHY AND FILL ALL HOLES UNDER THE MILL FOUNDATION. SEED, FERTILIZE AND MULCH
17
BACKFILL 3 VERTICAL HOLES AND INCLINED CONVEYOR GALLERY WITH MATERIAL FROM WASTE DUMP
REVEGETATE
HOUSE FOUNDATION
ADIT CONVEYOR GALLERY 4
27
47
NO ACTION
19
BACKFILL WITHOUT DISTURBING CONCRETE STRUCTURE
S-2
CONCRETE FOUNDATIONS
SOUTH X
CROSS-SECTION X-X'
NORTH X'
ELEVATION IN FEET (MSL)
6010
5980
5960
5940
CONVEYOR GALLERY #1
CONVEYOR GALLERY #2
CONVEYOR GALLERY #3
EXISTING TOPOGRAPHY
WASTE DUMP MATERIAL
REGRADE
SCALE IN FEET
SOUTH Y
CROSS-SECTION Y-Y'
NORTH Y'
6010
6000
5990
5980
CONCRETE WALL
BACKFILL LINE 1.5H:1V
CONCRETE FLOOR
SCALE IN FEET

NOTE: CHROME CORPORATION INTERNATIONAL DOES NOT WANT ANY OF THE CONCRETE FOUNDATIONS DAMAGED OR DESTROYED.



VICINITY ACCESS MAP



SITE LOCATION MAP

Vertical Datum Based On Interpolation Of USGS 7½ Quadrangle NYE
Topography Prepared From Ground Survey Conducted In 1988 By Spectrum Engineering Using A Plane Table And Alidade. This Topography Is Of Reconnaissance Class And Has Not Been Field Checked

LANDOWNER:
T5S, R16E, NW 1/4 of Section 21

U.S. Government
Custer National Forest
U.S. Forest Service
c/o George Weldon
Box 3420, Route 2
Red Lodge, MT 59068
Phone: 406/446-2103

MINERAL CLAIMANT:
Unpatented Lode Claims
Named Nate 1 through 21
Chrome Corp. International
c/o John Sellar
Vice-President-Operations
12640 W. Cedar Drive
Suite B
Lakewood, CO 80228
Phone: 303/969-8903

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NOTICE

AN ABANDONED MINE UNDERLIES THIS SITE. MANY POTENTIAL HAZARDS EXIST. THE EXTENT OF THESE HAZARDS IS NOT FULLY KNOWN. CONTRACTORS AND OTHER PERSONS WORKING AT THE SITE SHALL APPRISE THEMSELVES OF THE CONDITIONS AND TAKE WHATEVER STEPS ARE DEEMED NECESSARY TO INSURE SAFETY WHILE PERFORMING THEIR DUTIES.

AS-BUILT DRAWING

SITE PLAN AND GENERAL LAYOUT

BENBOW MILL-PHOTO INDEX

SECTION 21, T5S, R16E
STILLWATER COUNTY, MONTANA

STATE OF MONTANA
DEPARTMENT OF STATE LANDS
ABANDONED MINE RECLAMATION BUREAU, RECLAMATION DIVISION

DATE February 1989
DRAWN BY: LNR
CHECKED BY:
APPROVED BY:

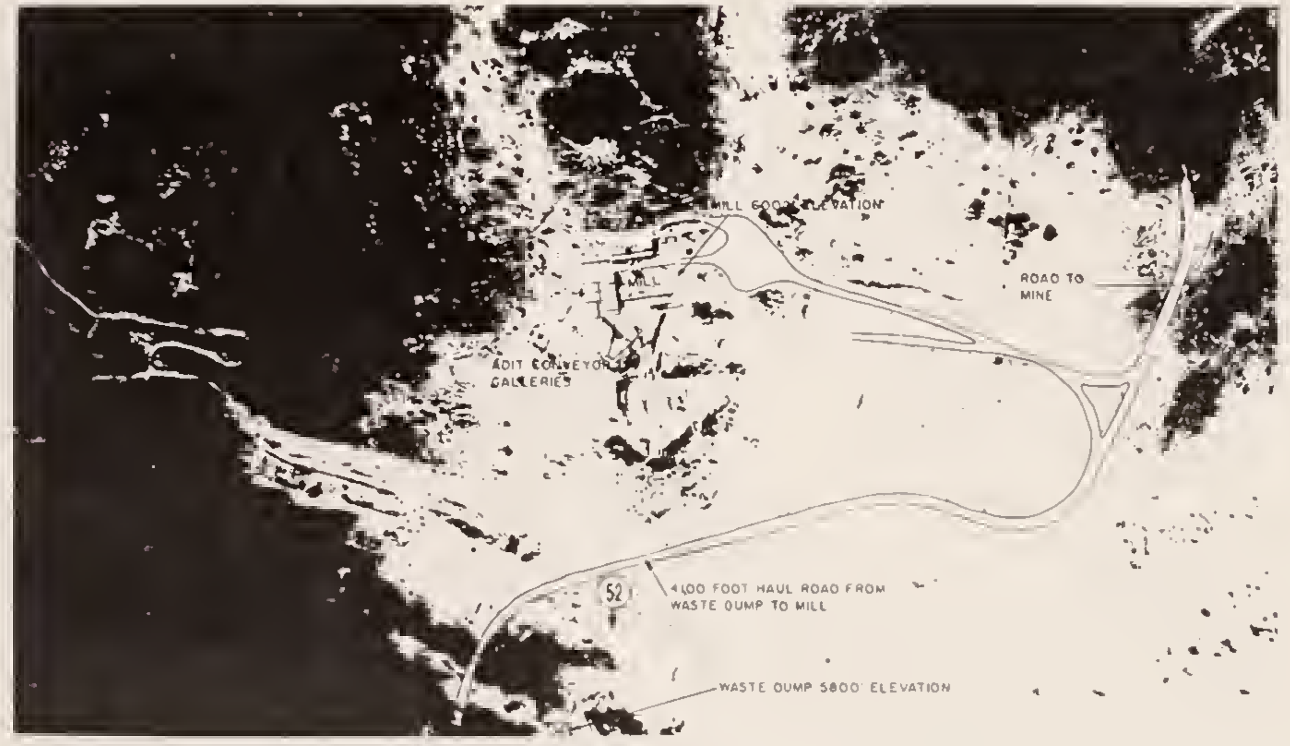
REVISIONS NO	DATE	BY
1	4-30-90	LNR
As-Built	12-20-90	DLO

SPECTRUM ENGINEERING
Mining and Civil Engineers
3302 4th AVE NORTH
BILLINGS, MONTANA

SHEET NO 1 of 2

① PICTURE I SHOWS THE MILL WASTE DUMP WITH LITTLE ROCKY CREEK RUNNING THROUGH IT.

② PICTURE 2 SHOWS SOME OF THE DEBRIS AT THE TOE OF THE DUMP IN LITTLE ROCKY CREEK


MILL 6000' ELEVATION
MILL
ROAD TO MINE
ADIT CONVEYOR GALLERIES
52
4100 FOOT HAUL ROAD FROM WASTE DUMP TO MILL
WASTE DUMP 5800' ELEVATION

③ PICTURE 3 IS AN AERIAL VIEW OF THE EDGE OF THE WASTE DUMP, ROAD FROM THE DUMP TO THE MILL, AND THE CONCRETE MILL FOUNDATION

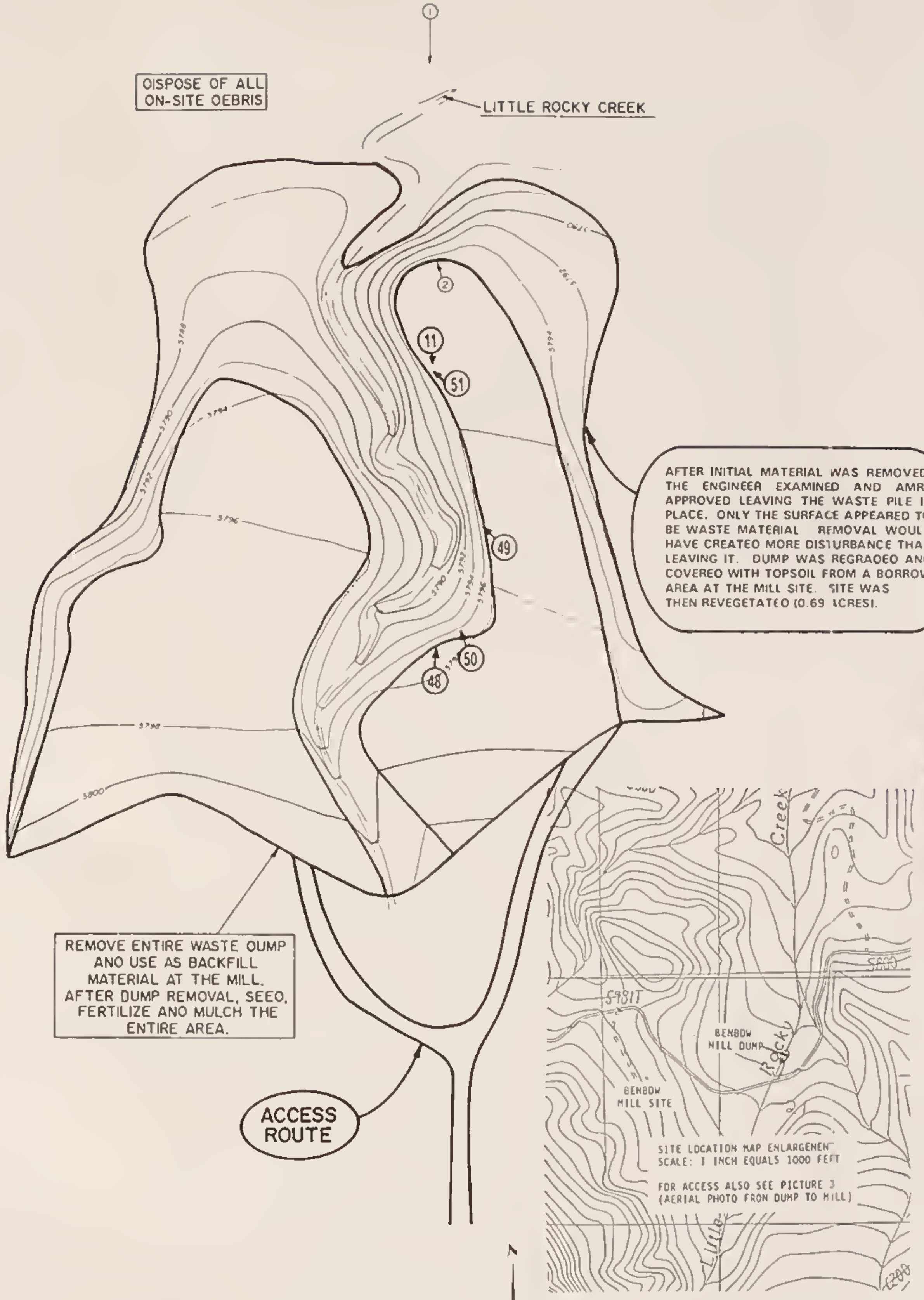
WORK DESCRIPTION

- REMOVE ENTIRE WASTE DUMP AND HAUL TO MILL FOUNDATION FOR BURIAL IN THE LOCATIONS NOTED ON SHEET 1 OF 2 (MILL AT 6000 FT ELEVATION AND WASTE DUMP AT 5800 FT ELEVATION - 200 FT UPHILL HAUL OVER A DISTANCE OF 4100 FEET). REGRADE THE AREA AFTER ORIGINAL TOPOGRAPHY IS ACHIEVED.

  DISTURBANCE TO LITTLE ROCKY CREEK SHOULD BE MINIMIZED. THE DUMP MATERIAL SHOULD BE PULLED BACK FROM BOTH EDGES OF THE CREEK WITH A BACKHOE. NO EQUIPMENT SHALL OPERATE WITHIN THE CREEK BOTTOM.
- DISPOSE OF ALL DEBRIS ON AND AROUND THE DUMP PRIOR TO DUMP REMOVAL AND REVEGETATION. ALL WOOD DEBRIS CAN BE BURNED OR HAULED TO AN APPROVED DISPOSAL SITE.
- PROVIDE WATER FOR ROAD & WORK AREA DUST SUPPRESSION.
- REVEGETATE (FERTILIZE, SEED AND MULCH) ALL DISTURBED AREAS.
- ADDITIONAL WORK DESCRIPTION DETAILS CAN BE FOUND IN THE SPECIAL PROVISIONS.

WORK SUMMARY TABLE

ITEM	DESCRIPTION	ACTION	QUANTITY
WASTE DUMP	LOCATED 4100 FEET FROM MILL ON BOTH SIDES OF LITTLE ROCKY CREEK COVERING AN AREA OF 150 FEET BY 180 FEET	REMOVE AND USE AS BACKFILL MATERIAL AT THE MILL FOUNDATION	3000 LCY
WATER	HAUL ROADS & WORK AREAS	DUST SUPPRESSION	2000 GALLONS
REVEGETATION OF ENTIRE DISTURBANCE AREA · 0.55 ACRES	SEED APPLICATION (23 LBS PLS/ACRE) 12.7 LBS PLS	FERTILIZER APPLICATION (92.5 LBS NUTRIENT/ACRE) 50.9 LBS	MULCH APPLICATION (3000 LBS/ACRE) 1650 LBS



DISPOSE OF ALL ON-SITE DEBRIS

REMOVE ENTIRE WASTE DUMP AND USE AS BACKFILL MATERIAL AT THE MILL. AFTER DUMP REMOVAL, SEED, FERTILIZE AND MULCH THE ENTIRE AREA.

ACCESS ROUTE

AFTER INITIAL MATERIAL WAS REMOVED, THE ENGINEER EXAMINED AND AMRB APPROVED LEAVING THE WASTE PILE IN PLACE. ONLY THE SURFACE APPEARED TO BE WASTE MATERIAL. REMOVAL WOULD HAVE CREATED MORE DISTURBANCE THAN LEAVING IT. DUMP WAS REGRADED AND COVERED WITH TOPSOIL FROM A BORROW AREA AT THE MILL SITE. SITE WAS THEN REVEGETATED (0.69 ACRES).

SITE LOCATION MAP ENLARGEMENT
SCALE: 1 INCH EQUALS 1000 FEET

FOR ACCESS ALSO SEE PICTURE 3
(AERIAL PHOTO FROM DUMP TO MILL)

LEGEND

—5800—	*CONTOUR*	①→	*PICTURE NUMBER AND ORIENTATION*
⬭	*WASTE DUMP*	SP1 ⬭	*SUBSIDENCE PIT (SP) NUMBER (& DEPTH)*
—	*DRAINAGE*	—<	*OPEN ADIT*

0 10 20 30 40
SCALE IN FEET
CONTOUR INTERVAL - 2 FT

Vertical Datum Based On Interpolation Of USGS 7½' Quadrangle NYE
Topography Prepared From Ground Survey Conducted In 1988 By Spectrum Engineering Using A Plane Table And Alidade. This Topography Is Of Reconnaissance Class And Has Not Been Field Checked

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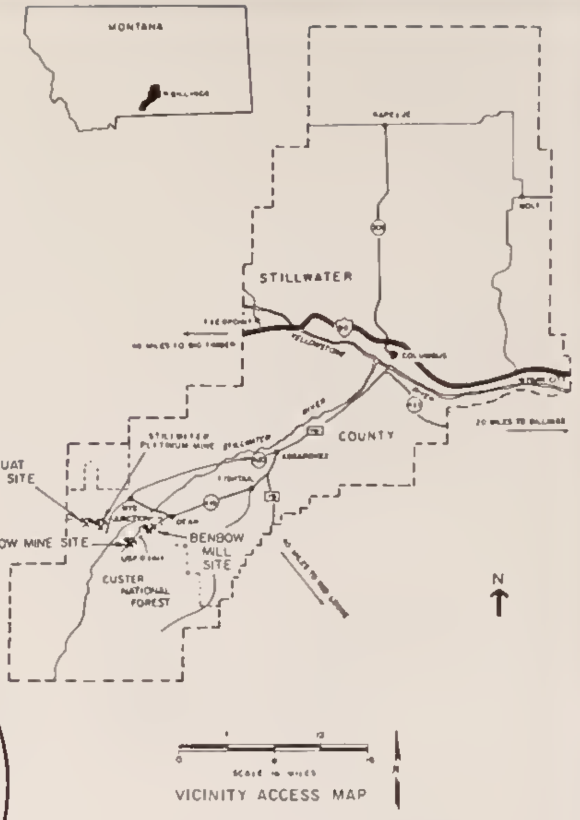
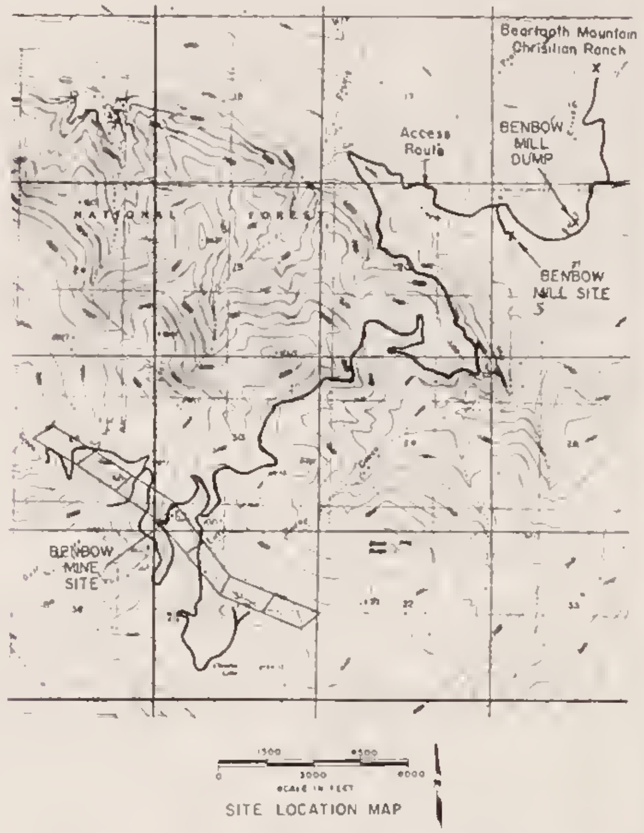


VICINITY ACCESS MAP



SITE LOCATION MAP

AS-BUILT DRAWING

SITE PLAN AND GENERAL LAYOUT

BENBOW MILL-PHOTO INDEX

SECTION 21, T5S, R16E
STILLWATER COUNTY, MT.

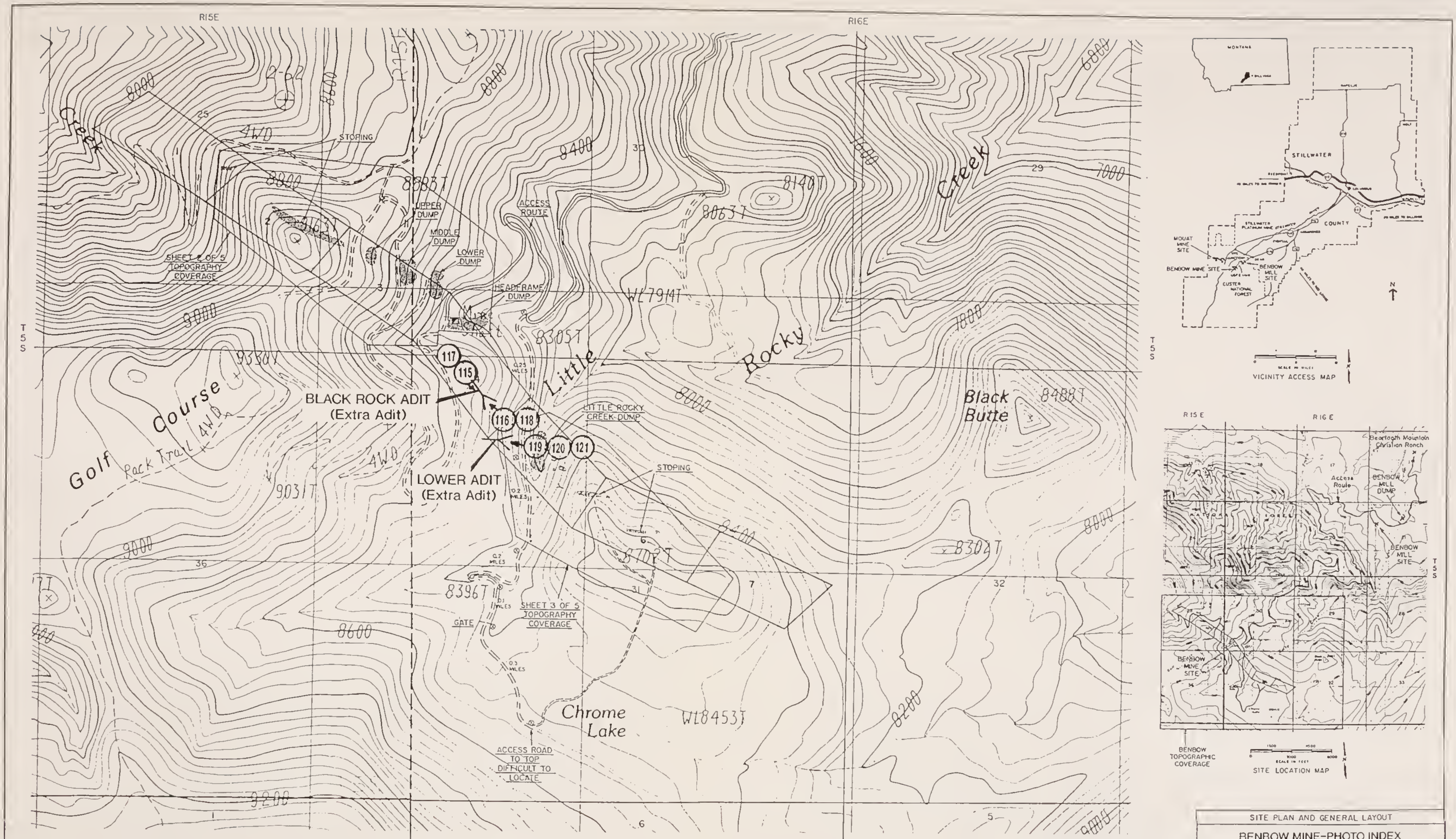
STATE OF MONTANA
DEPARTMENT OF STATE LANDS
ABANDONED MINE RECLAMATION BUREAU, RECLAMATION DIVISION

DATE: FEBRUARY, 1989
DRAWN BY: LNR
CHECKED BY:
APPROVED BY:

REVISIONS NO	DATE	BY
1	4-30-90	LNR
As-Built	12-20-90	DLD

SPECTRUM ENGINEERING
Mining and Civil Engineers
3302 4th AVE NORTH
BILLINGS, MONTANA

SHEET NO 2 of 2



PATENTED CLAIMS

- 1 BIG SEVEN CLAIM
- 2 MAJESTIC CLAIM
- 3 TITANIC CLAIM
- 4 BLACK ROCK CLAIM
- 5 ECLIPSE CLAIM
- 6 LUCKY STRIKE CLAIM
- 7 WAR EAGLE CLAIM

LANDOWNER:
T5S, R15E, Section 25
T5S, R16E, Section 30 & 31
7 Patented Claims

Benbow Mines Ltd.
Formerly Chromium
Products Corporation
c/o Ben Berg, Jr.
Box 550
Bozeman, MT 59715
Phone: 406/587-3181

LESSEE:
Chrome Corp. International
c/o John Sellar
Vice-President-Operations
12640 W. Cedar Drive
Suite 8
Lakewood, CO 80228
Phone: 303/969-8903

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SITE PLAN AND GENERAL LAYOUT

BENBOW MINE-PHOTO INDEX
SECTION 25, T5S, R15E
SECTIONS 30 AND 31, T5S, R16E
STILLWATER COUNTY, MONTANA

STATE OF MONTANA
DEPARTMENT OF STATE LANDS
ABANDONED MINE RECLAMATION BUREAU, RECLAMATION DIVISION

DATE: February 1989
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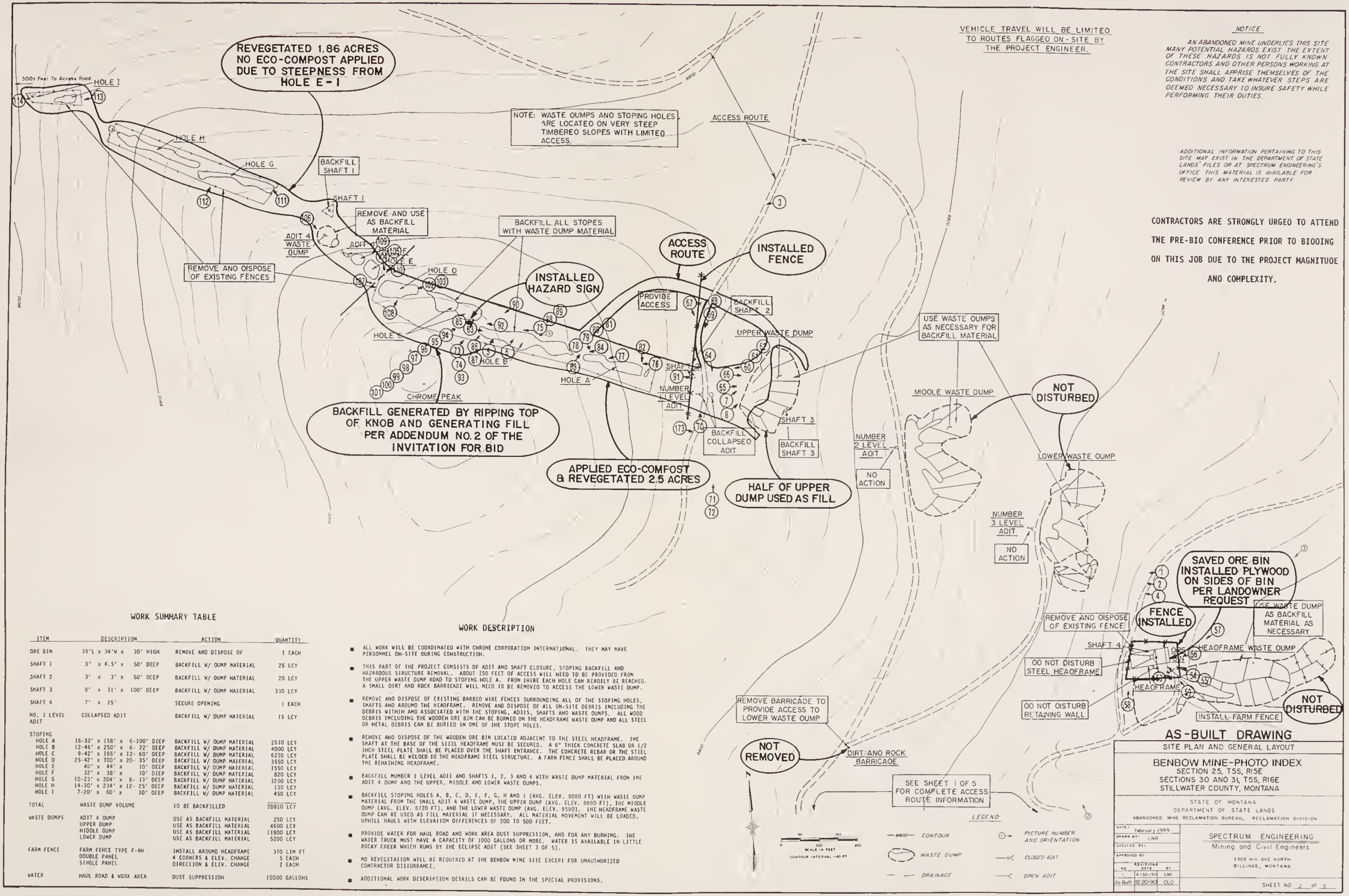
SPECTRUM ENGINEERING
Mining and Civil Engineers
3302 4th AVE NORTH
BILLINGS, MONTANA

SHEET NO 1 of 5


VEHICLE TRAVEL WILL BE LIMITED TO ROUTES FLAGGED ON-SITE BY THE PROJECT ENGINEER.
REVEGETATED 1.86 ACRES NO ECO-COMPOST APPLIED DUE TO STEEPNESS FROM HOLE E-1
300± Feet To Access Road
HOLE I
HOLE H
HOLE G
NOTE: WASTE DUMPS AND STOPING HOLES ARE LOCATED ON VERY STEEP TIMBERED SLOPES WITH LIMITED ACCESS.
ACCESS ROUTE
BACKFILL SHAFT I
SHAFT I
REMOVE AND USE AS BACKFILL MATERIAL
BACKFILL ALL STOPES WITH WASTE DUMP MATERIAL
ADIT 4 WASTE DUMP
ADIT 4
HOLE F
HOLE E
HOLE D
REMOVE AND DISPOSE OF EXISTING FENCES
ACCESS ROUTE
INSTALLED FENCE
INSTALLED HAZARD SIGN
PROVIDE ACCESS
BACKFILL SHAFT 2
UPPER WASTE DUMP
USE WASTE DUMPS AS NECESSARY FOR BACKFILL MATERIAL
HOLE C
HOLE B
HOLE A
SHAFT 2
NUMBER 1 LEVEL ADIT
CHROME PEAK
BACKFILL GENERATED BY RIPPING TOP OF KNOB AND GENERATING FILL PER ADDENDUM NO. 2 OF THE INVITATION FOR BID
SHAFT 3
BACKFILL COLLAPSED ADIT
BACKFILL SHAFT 3
APPLIED ECO-COMPOST & REVEGETATED 2.5 ACRES
HALF OF UPPER DUMP USED AS FILL
MIDDLE WASTE DUMP
NOT DISTURBED
NUMBER 2 LEVEL ADIT
NO ACTION
LOWER WASTE DUMP
NUMBER 3 LEVEL ADIT
NO ACTION
SAVED ORE BIN INSTALLED PLYWOOD ON SIDES OF BIN PER LANDOWNER REQUEST
REMOVE AND DISPOSE OF EXISTING FENCE
FENCE INSTALLED
USE WASTE DUMP AS BACKFILL MATERIAL AS NECESSARY
SHAFT 4
ORE BIN
HEADFRAME WASTE DUMP
DO NOT DISTURB STEEL HEADFRAME
HEADFRAME
DO NOT DISTURB RETAINING WALL
INSTALL FARM FENCE
NOT DISTURBED
REMOVE BARRICADE TO PROVIDE ACCESS TO LOWER WASTE DUMP
NOT REMOVED
DIRT AND ROCK BARRICADE
SEE SHEET 1 OF 5 FOR COMPLETE ACCESS ROUTE INFORMATION
N
0 50 100 150 200
SCALE IN FEET
CONTOUR INTERVAL = 40 FT
LEGEND
8800 CONTOUR
WASTE DUMP
DRAINAGE
PICTURE NUMBER AND ORIENTATION
CLOSED ADIT
OPEN ADIT

NOTICE

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WORK SUMMARY TABLE

ITEM	DESCRIPTION	ACTION	QUANTITY
ORE BIN	39'L x 34'W x 30' HIGH	REMOVE AND DISPOSE OF	1 EACH
SHAFT 1	3' x 4.5' x 50' DEEP	BACKFILL W/ DUMP MATERIAL	25 LCY
SHAFT 2	3' x 3' x 50' DEEP	BACKFILL W/ DUMP MATERIAL	20 LCY
SHAFT 3	8' x 11' x 100' DEEP	BACKFILL W/ DUMP MATERIAL	330 LCY
SHAFT 4	7' x 15'	SECURE OPENING	1 EACH
NO. 1 LEVEL ADIT	COLLAPSED ADIT	BACKFILL W/ DUMP MATERIAL	15 LCY
STOPING			
HOLE A	15-32' x 158' x 6-100' DEEP	BACKFILL W/ DUMP MATERIAL	2510 LCY
HOLE B	12-46' x 250' x 6- 22' DEEP	BACKFILL W/ DUMP MATERIAL	4000 LCY
HOLE C	9-42' x 155' x 12- 60' DEEP	BACKFILL W/ DUMP MATERIAL	6210 LCY
HOLE D	25-42' x 100' x 20- 35' DEEP	BACKFILL W/ DUMP MATERIAL	3550 LCY
HOLE E	40' x 44' x 10' DEEP	BACKFILL W/ DUMP MATERIAL	1550 LCY
HOLE F	32' x 38' x 10' DEEP	BACKFILL W/ DUMP MATERIAL	820 LCY
HOLE G	10-23' x 204' x 8- 13' DEEP	BACKFILL W/ DUMP MATERIAL	1200 LCY
HOLE H	14-30' x 234' x 12- 25' DEEP	BACKFILL W/ DUMP MATERIAL	130 LCY
HOLE I	7-20' x 60' x 10' DEEP	BACKFILL W/ DUMP MATERIAL	450 LCY
TOTAL	WASTE DUMP VOLUME	TO BE BACKFILLED	20810 LCY
WASTE DUMPS	ADIT 4 DUMP	USE AS BACKFILL MATERIAL	250 LCY
	UPPER DUMP	USE AS BACKFILL MATERIAL	4600 LCY
	MIDDLE DUMP	USE AS BACKFILL MATERIAL	11800 LCY
	LOWER DUMP	USE AS BACKFILL MATERIAL	5200 LCY
FARM FENCE	FARM FENCE TYPE F-4H	INSTALL AROUND HEADFRAME	370 LIN FT
	DOUBLE PANEL	4 CORNERS & ELEV. CHANGE	5 EACH
	SINGLE PANEL	DIRECTION & ELEV. CHANGE	2 EACH
WATER	HAUL ROAD & WORK AREA	DUST SUPPRESSION	10000 GALLONS

WORK DESCRIPTION

- ALL WORK WILL BE COORDINATED WITH CHROME CORPORATION INTERNATIONAL. THEY MAY HAVE PERSONNEL ON-SITE DURING CONSTRUCTION.
- THIS PART OF THE PROJECT CONSISTS OF ADIT AND SHAFT CLOSURE, STOPING BACKFILL AND HAZARDOUS STRUCTURE REMOVAL. ABOUT 150 FEET OF ACCESS WILL NEED TO BE PROVIDED FROM THE UPPER WASTE DUMP ROAD TO STOPING HOLE A. FROM THERE EACH HOLE CAN READILY BE REACHED. A SMALL DIRT AND ROCK BARRICADE WILL NEED TO BE REMOVED TO ACCESS THE LOWER WASTE DUMP.
- REMOVE AND DISPOSE OF EXISTING BARBED WIRE FENCES SURROUNDING ALL OF THE STOPING HOLES, SHAFTS AND AROUND THE HEADFRAME. REMOVE AND DISPOSE OF ALL ON-SITE DEBRIS INCLUDING THE DEBRIS WITHIN AND ASSOCIATED WITH THE STOPING, ADITS, SHAFTS AND WASTE DUMPS. ALL WOOD DEBRIS INCLUDING THE WOODEN ORE BIN CAN BE BURNED ON THE HEADFRAME WASTE DUMP AND ALL STEEL OR METAL DEBRIS CAN BE BURIED IN ONE OF THE STOPE HOLES.
- REMOVE AND DISPOSE OF THE WOODEN ORE BIN LOCATED ADJACENT TO THE STEEL HEADFRAME. THE SHAFT AT THE BASE OF THE STEEL HEADFRAME MUST BE SECURED. A 6" THICK CONCRETE SLAB OR 1/2 INCH STEEL PLATE SHALL BE PLACED OVER THE SHAFT ENTRANCE. THE CONCRETE REBAR OR THE STEEL PLATE SHALL BE WELDED TO THE HEADFRAME STEEL STRUCTURE. A FARM FENCE SHALL BE PLACED AROUND THE REMAINING HEADFRAME.
- BACKFILL NUMBER 1 LEVEL ADIT AND SHAFTS 1, 2, 3 AND 4 WITH WASTE DUMP MATERIAL FROM THE ADIT 4 DUMP AND THE UPPER, MIDDLE AND LOWER WASTE DUMPS.
- BACKFILL STOPING HOLES A, B, C, D, E, F, G, H AND I (AVG. ELEV. 9080 FT) WITH WASTE DUMP MATERIAL FROM THE SMALL ADIT 4 WASTE DUMP, THE UPPER DUMP (AVG. ELEV. 8880 FT), THE MIDDLE DUMP (AVG. ELEV. 8720 FT), AND THE LOWER WASTE DUMP (AVG. ELEV. 8580). THE HEADFRAME WASTE DUMP CAN BE USED AS FILL MATERIAL IF NECESSARY. ALL MATERIAL MOVEMENT WILL BE LOADED, UPHILL HAULS WITH ELEVATION DIFFERENCES OF 200 TO 500 FEET.
- PROVIDE WATER FOR HAUL ROAD AND WORK AREA DUST SUPPRESSION, AND FOR ANY BURNING. THE WATER TRUCK MUST HAVE A CAPACITY OF 1000 GALLONS OR MORE. WATER IS AVAILABLE IN LITTLE ROCKY CREEK WHICH RUNS BY THE ECLIPSE ADIT (SEE SHEET 3 OF 5).
- NO REVEGETATION WILL BE REQUIRED AT THE BENBOW MINE SITE EXCEPT FOR UNAUTHORIZED CONTRACTOR DISTURBANCE.
- ADDITIONAL WORK DESCRIPTION DETAILS CAN BE FOUND IN THE SPECIAL PROVISIONS.

AS-BUILT DRAWING

SITE PLAN AND GENERAL LAYOUT

BENBOW MINE-PHOTO INDEX
SECTION 25, T5S, R15E
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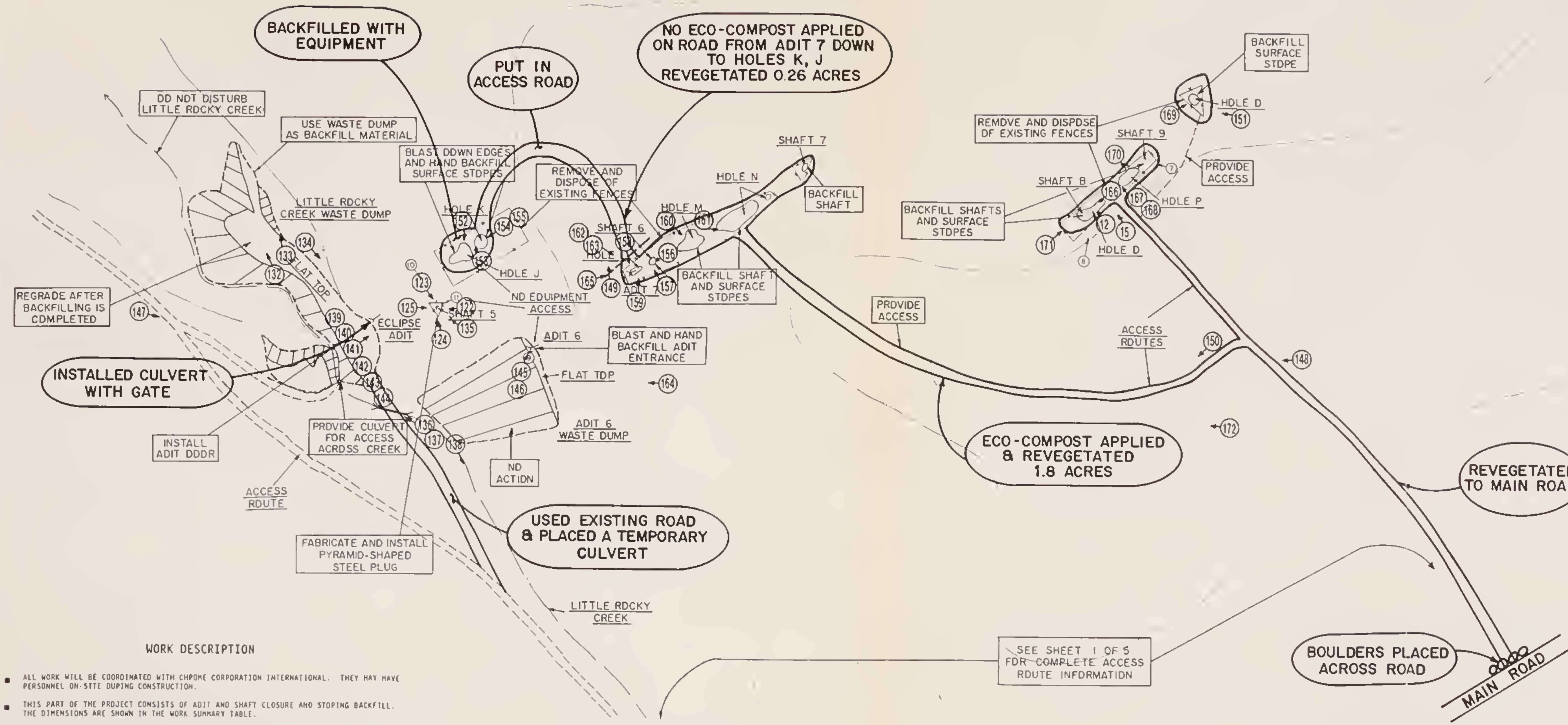
Mining and Civil Engineers
3302 4th AVE NORTH
BILLINGS, MONTANA

SHEET NO 2 of 5


BACKFILLED WITH EQUIPMENT
PUT IN ACCESS ROAD
NO ECO-COMPOST APPLIED ON ROAD FROM ADIT 7 DOWN TO HOLES K, J REVEGETATED 0.26 ACRES
DO NOT DISTURB LITTLE ROCKY CREEK
USE WASTE DUMP AS BACKFILL MATERIAL
BLAST DOWN EDGES AND HAND BACKFILL SURFACE STOPES
REMOVE AND DISPOSE OF EXISTING FENCES
LITTLE ROCKY CREEK WASTE DUMP
FLAT TOP
HOLE K
HOLE J
HOLE M
HOLE N
HOLE
SHAFT 6
SHAFT 7
ADIT 7
BACKFILL SHAFT
BACKFILL SHAFT AND SURFACE STOPES
NO EQUIPMENT ACCESS
REGRADE AFTER BACKFILLING IS COMPLETED
ECLIPSE ADIT
SHAFT 5
ADIT 6
BLAST AND HAND BACKFILL ADIT ENTRANCE
FLAT TOP
ADIT 6 WASTE DUMP
NO ACTION
INSTALLED CULVERT WITH GATE
INSTALL ADIT DOOR
PROVIDE CULVERT FOR ACCESS ACROSS CREEK
ACCESS ROUTE
FABRICATE AND INSTALL PYRAMID-SHAPED STEEL PLUG
USED EXISTING ROAD & PLACED A TEMPORARY CULVERT
LITTLE ROCKY CREEK
BACKFILL SURFACE STOPE
HOLE O
REMOVE AND DISPOSE OF EXISTING FENCES
SHAFT 9
SHAFT 8
PROVIDE ACCESS
HOLE P
BACKFILL SHAFTS AND SURFACE STOPES
HOLE O
PROVIDE ACCESS
ACCESS ROUTES
ECO-COMPOST APPLIED & REVEGETATED 1.8 ACRES
REVEGETATED TO MAIN ROAD
SEE SHEET 1 OF 5 FOR COMPLETE ACCESS ROUTE INFORMATION
BOULDERS PLACED ACROSS ROAD
MAIN ROAD
7
8
10
11
12
15
122
123
124
125
132
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VEHICLE TRAVEL WILL BE LIMITED TO ROUTES FLAGGED ON-SITE BY THE PROJECT ENGINEER.

CONTRACTORS ARE STRONGLY URGED TO ATTEND THE PRE-BID CONFERENCE PRIOR TO BIDDING ON THIS JOB DUE TO THE PROJECT MAGNITUDE AND COMPLEXITY.

WORK DESCRIPTION

- ALL WORK WILL BE COORDINATED WITH CHROME CORPORATION INTERNATIONAL. THEY MAY HAVE PERSONNEL ON-SITE DURING CONSTRUCTION.
- THIS PART OF THE PROJECT CONSISTS OF ADIT AND SHAFT CLOSURE AND STOPING BACKFILL. THE DIMENSIONS ARE SHOWN IN THE WORK SUMMARY TABLE.

••

- THE FIRST ITEM OF WORK AT THE BENBOW SITE SHALL BE TO CONSTRUCT AN INVERTED PYRAMID-SHAPED PLUG ON-SITE FOR SHAFT 5. THERE IS NO VEHICLE ACCESS TO SHAFT 5. AFTER FABRICATION, THE STATE OF MONTANA WILL BE NOTIFIED THAT THEIR HELICOPTER IS NEEDED. SOMETIME PRIOR TO JOB COMPLETION THE HELICOPTER WILL BE PROVIDED TO AIRLIFT THE PYRAMID TO THE SHAFT. THE CONTRACTOR WILL BE RESPONSIBLE FOR PLACEMENT INTO THE SHAFT. THE REBAR TO BE PLACED INSIDE THE PYRAMID WILL BE AIRLIFTED SEPARATELY FROM THE PYRAMID DUE TO HELICOPTER WEIGHT RESTRICTIONS. THE CONTRACTOR WILL THEN COMPLETE THE FABRICATION AND FILL THE PYRAMID WITH CONCRETE. THE CONTRACTOR WILL NOT BE ALLOWED TO ESTABLISH ANY FORM OF ACCESS ROAD TO THE SHAFT.

••

- REHABILITATE THE DOOR AND PROVIDE & INSTALL A LOCK ON THE ENTRANCE TO THE ECLIPSE ADIT.
- REMOVE AND DISPOSE OF EXISTING BARBED WIRE FENCES SURROUNDING ALL OF THE STOPING HOLES AND SHAFTS. REMOVE AND DISPOSE OF ALL ON-SITE DEBRIS INCLUDING THE DEBRIS WITHIN AND ASSOCIATED WITH THE STOPING, ADITS, SHAFTS AND WASTE DUMPS.
- DRILL AND BLAST ADIT 6 CLOSED AND HAND BACKFILL THE REMAINING DEPRESSION.
- DRILL AND BLAST DOWN THE SIDES OF STOPING HOLES J AND K. SOME HAND WORK WILL BE NECESSARY TO REDUCE ANY REMAINING HAZARDS. DRILLING EQUIPMENT OR AIR HOSES AND JACKLEG MUST BE HAND CARRIED TO THE SITE. THERE IS NO EQUIPMENT ACCESS.
- BACKFILL SHAFTS 6, 7, 8 AND 9 AND STOPING HOLES L, M, N, O, P AND Q WITH WASTE DUMP MATERIAL FROM LITTLE ROCKY CREEK DUMP IN FRONT OF THE ECLIPSE ADIT. THERE IS VEHICLE ACCESS TO THESE FEATURES. AN ACCESS ROAD WILL NEED TO BE PROVIDED TO REACH SHAFTS 6 AND 7 AND STOPING HOLES L, M AND N.
- A 30 FOOT, 24 INCH DIAMETER CULVERT MUST BE PROVIDED AND PLACED INTO LITTLE ROCKY CREEK TO ACCESS THE WASTE DUMP AND THE ECLIPSE ADIT. THE CULVERT WILL BE REMOVED UPON JOB COMPLETION AND REMAIN THE PROPERTY OF THE CONTRACTOR.
- PROVIDE WATER FOR HAUL ROAD AND WORK AREA DUST SUPPRESSION, AND FOR ANY BURNING. THE WATER TRUCK MUST HAVE A CAPACITY OF 1000 GALLONS OR MORE. WATER MAY BE AVAILABLE IN LITTLE ROCKY CREEK WHICH RUNS BY THE ECLIPSE ADIT.
- NO REVEGETATION WILL BE REQUIRED AT THE BENBOW MINE SITE EXCEPT FOR UNAUTHORIZED CONTRACTOR DISTURBANCE. THE LITTLE ROCKY CREEK DUMP WILL NEED TO BE REGRADED AFTER ALL BACKFILLING OPERATIONS ARE COMPLETED. LITTLE ROCKY CREEK CAN NOT BE DISTURBED.
- ADDITIONAL WORK DESCRIPTION DETAILS CAN BE FOUND IN THE SPECIAL PROVISIONS.

⑨ ⑩ WORK SUMMARY TABLE

ITEM	DESCRIPTION	ACTION	QUANTITY
ECLIPSE ADIT	5'W x 6'H OPENING	INSTALL LOCKING ADIT DOOR	1 EACH
HELICOPTER	MOVE STEEL PYRAMID PLUG TO SHAFT 5	AIRLIFTED TO SHAFT WITH CONTRACTOR PLACEMENT	
SHAFT 5	3.5' x 7.5' x 100' DEEP	FABRICATE AND INSTALL INVERTED PYRAMID-SHAPED PLUG	1 EACH
ADIT 6	5'W x 6'H OPENING x 10'D	BLAST AND HAND BACKFILL	10 LCY
STOPING			
HOLE J	14-30' x ' x 4-10' DEEP	BLAST DOWN STOPE EDGES HAND BACKFILL	100 LCY 25 LCY
HOLE K	15' x 25' x 30' DEEP	BLAST DOWN STOPE EDGES HAND BACKFILL	260 LCY 40 LCY
SHAFT 6	9.5' x 10.5' x 100' DEEP	BACKFILL W/ DUMP MATERIAL	370 LCY
SHAFT 7	8' x 13' x 100' DEEP	BACKFILL W/ DUMP MATERIAL	385 LCY
SHAFT 8	8' x 8' x 100' DEEP	BACKFILL W/ DUMP MATERIAL	240 LCY
SHAFT 9	9' x 12' x 100' DEEP	BACKFILL W/ DUMP MATERIAL	400 LCY
STOPING			
HOLE L	12' x 25' x 0-7' DEEP	BACKFILL W/ DUMP MATERIAL	50 LCY
HOLE M	9-33' x 50' x 0-17' DEEP	BACKFILL W/ DUMP MATERIAL	600 LCY
HOLE N	10-33' x 115' x 8-17' DEEP	BACKFILL W/ DUMP MATERIAL	1260 LCY
HOLE O	8-20' x 57' x 7-18' DEEP	BACKFILL W/ DUMP MATERIAL	370 LCY
HOLE P	20' x 38' x 40' DEEP	BACKFILL W/ DUMP MATERIAL	1130 LCY
HOLE Q	14' x 20' x 17' DEEP	BACKFILL W/ DUMP MATERIAL	60 LCY
WATER	HAUL ROAD & WORK AREA	DUST SUPPRESSION	10000 GALLONS

Vertical Datum Based O. Interpolation Of USGS 7½' Quadrangle Mt Wood
Topography Prepared From Ground Survey Conducted In 1988 By Spectrum Engineering Using A Plane Table And Alidade. This Topography Is Of Reconnaissance Class And Has Not Been Field Checked

ADDITIONAL INFORMATION PERTAINING TO THIS SITE MAY EXIST IN THE DEPARTMENT OF STATE LANDS FILES OR AT SPECTRUM ENGINEERING'S OFFICE. THIS MATERIAL IS AVAILABLE FOR REVIEW BY ANY INTERESTED PARTY

LEGEND

—8400—	*CONTOUR*	①→	*PICTURE NUMBER AND ORIENTATION*
▨	*WASTE DUMP*	—K	*CLOSED ADIT*
— —	*DRAINAGE*	—<	*OPEN ADIT*

0 50 100 150 200
SCALE IN FEET
CONTOUR INTERVAL - FEET

NOTICE

AN ABANDONED MINE UNDERLIES THIS SITE. MANY POTENTIAL HAZARDS EXIST. THE EXTENT OF THESE HAZARDS IS NOT FULLY KNOWN. CONTRACTORS AND OTHER PERSONS WORKING AT THE SITE SHALL APPRISE THEMSELVES OF THE CONDITIONS AND TAKE WHATEVER STEPS ARE DEEMED NECESSARY TO INSURE SAFETY WHILE PERFORMING THEIR DUTIES.

AS-BUILT DRAWING

SITE PLAN AND GENERAL LAYOUT

BENBOW MINE-PHOTO INDEX
SECTION 25, T5S, R15E
SECTIONS 30 AND 31, T5S, R16E
STILLWATER COUNTY, MONTANA

STATE OF MONTANA
DEPARTMENT OF STATE LANDS
ABANDONED MINE RECLAMATION BUREAU, RECLAMATION DIVISION

DATE FEBRUARY, 1989
DRAWN BY LNR
CHECKED BY
APPROVED BY

REVISIONS NO	DATE	BY
1	3/1990	LNR
2	4/30/90	LNR
As-Built	12-20-90	DLO

SPECTRUM ENGINEERING
Mining and Civil Engineers
3302 4th AVE NORTH
BILLINGS, MONTANA

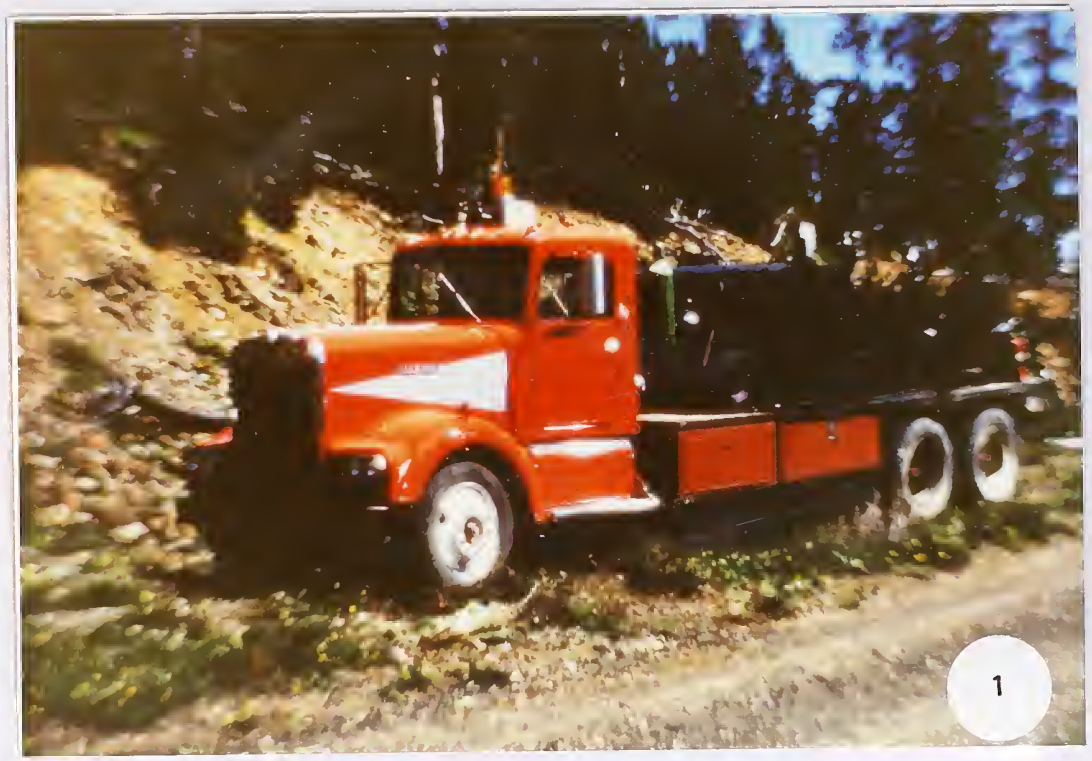
SHEET NO 3 of 5

C-LINE #52584
35MM PRINTS

BENBOW PROJECT

DONNES CONSTRUCTION

EQUIPMENT PROFILE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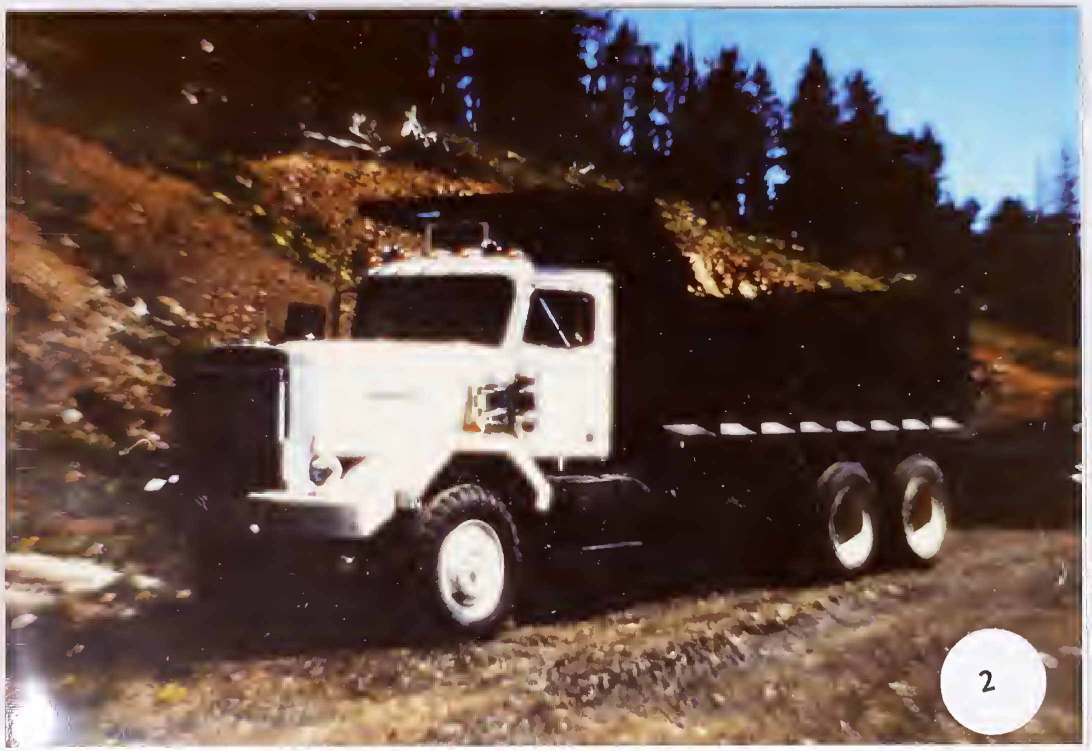
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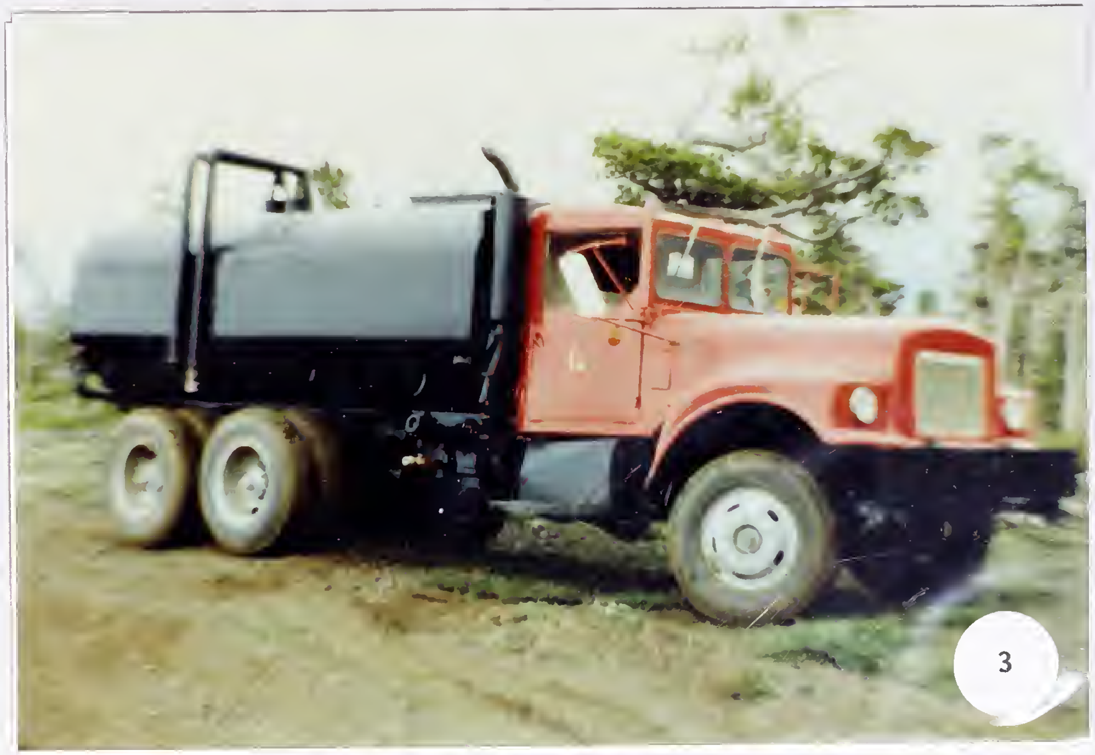
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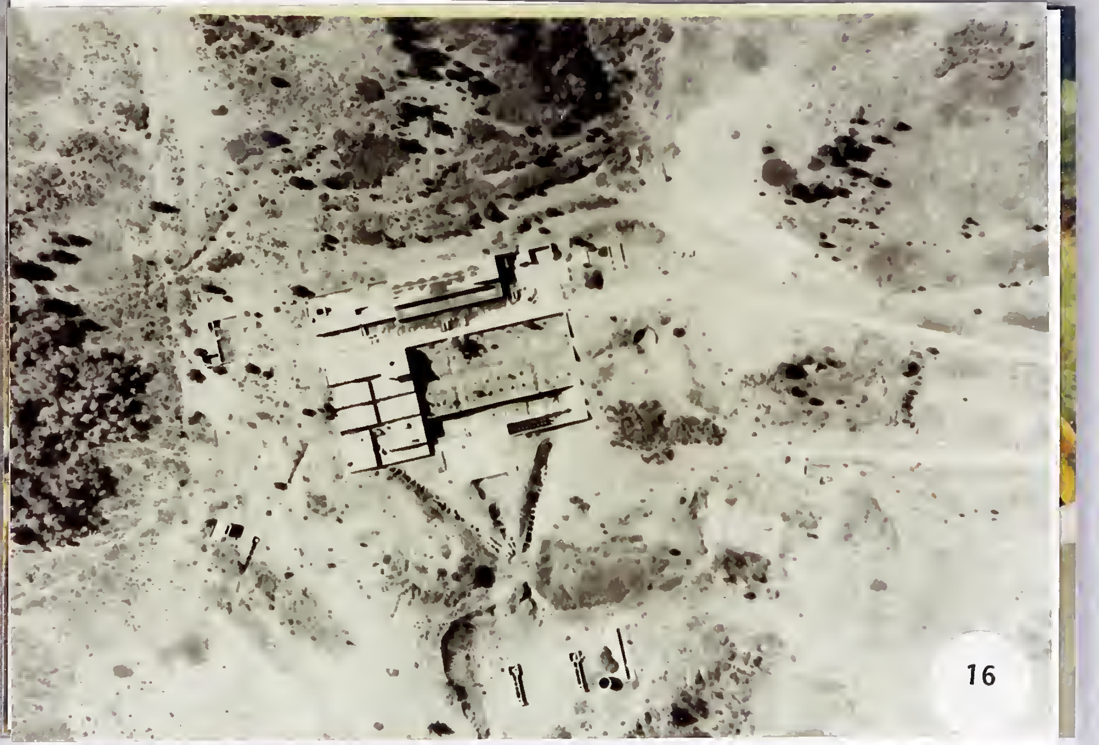
BENBOW MILL SITE
AND WASTE DUMP



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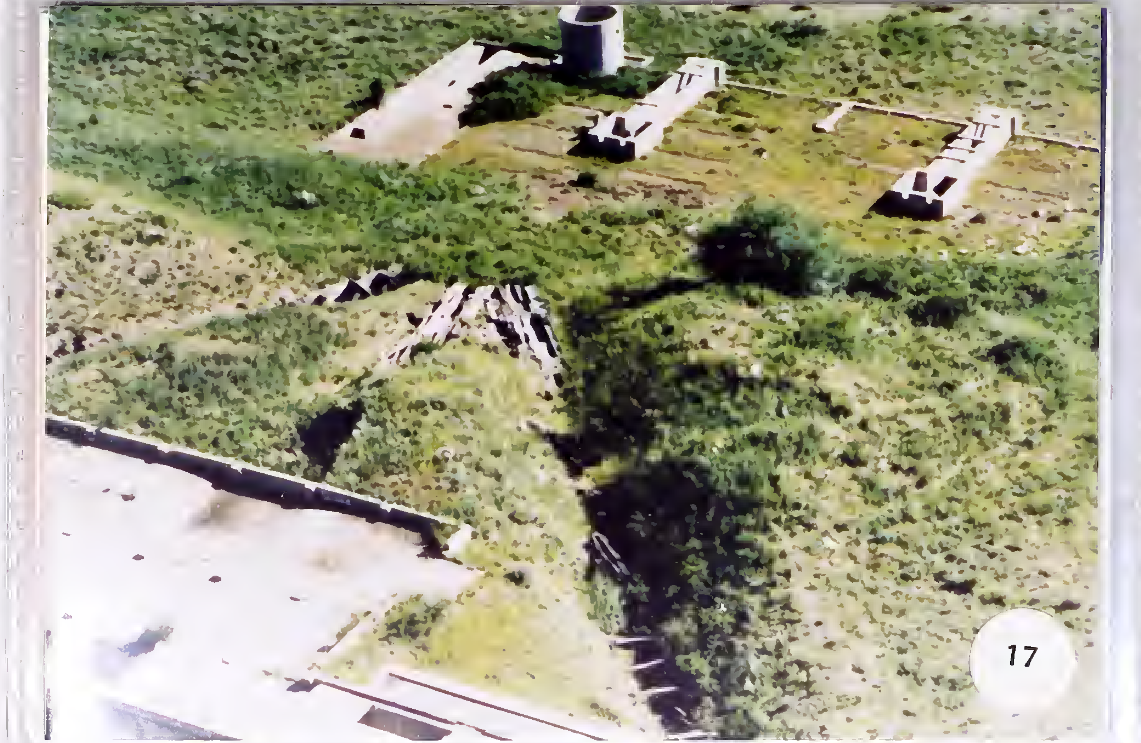

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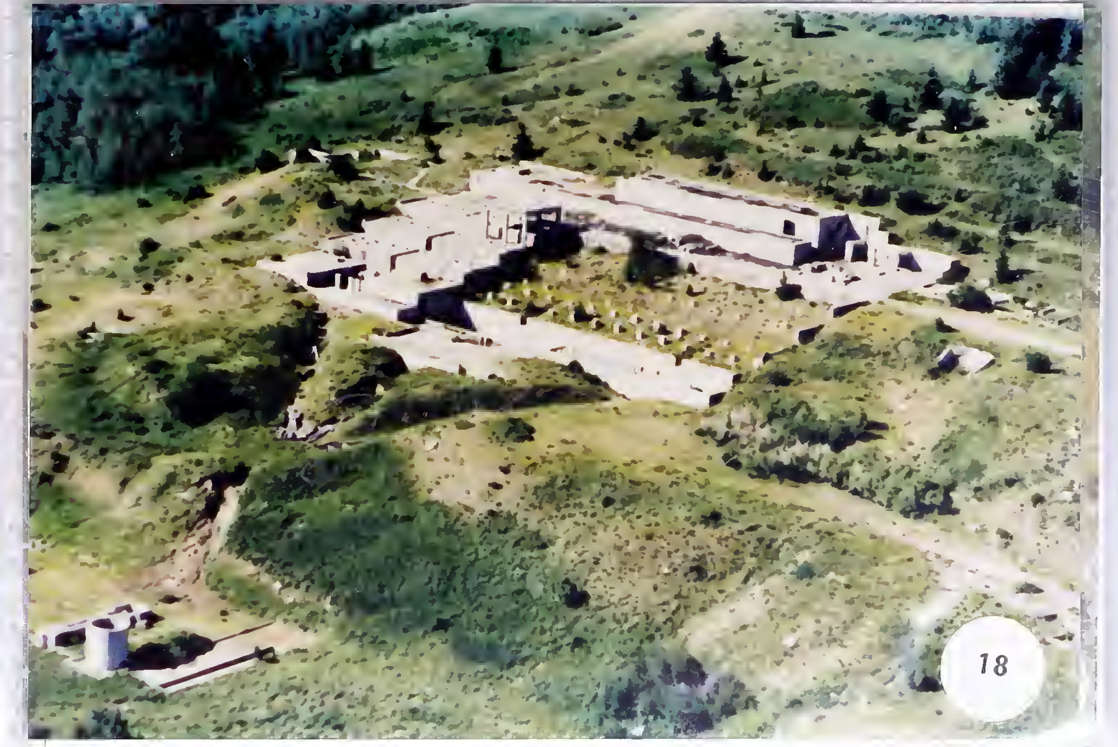

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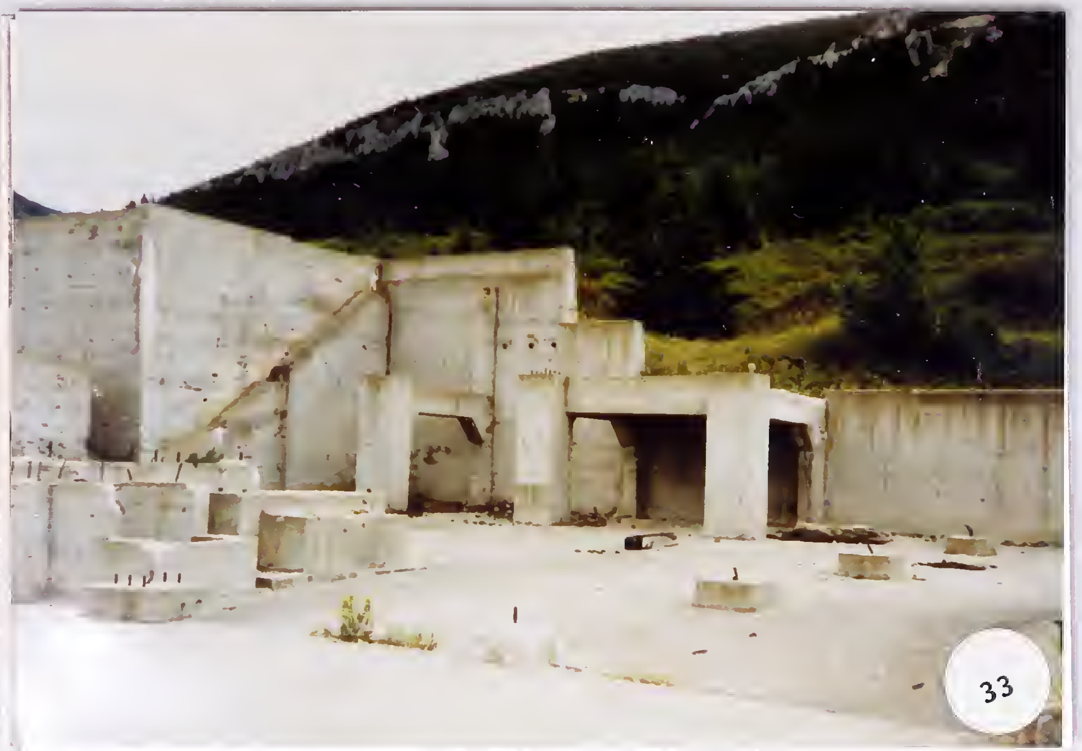
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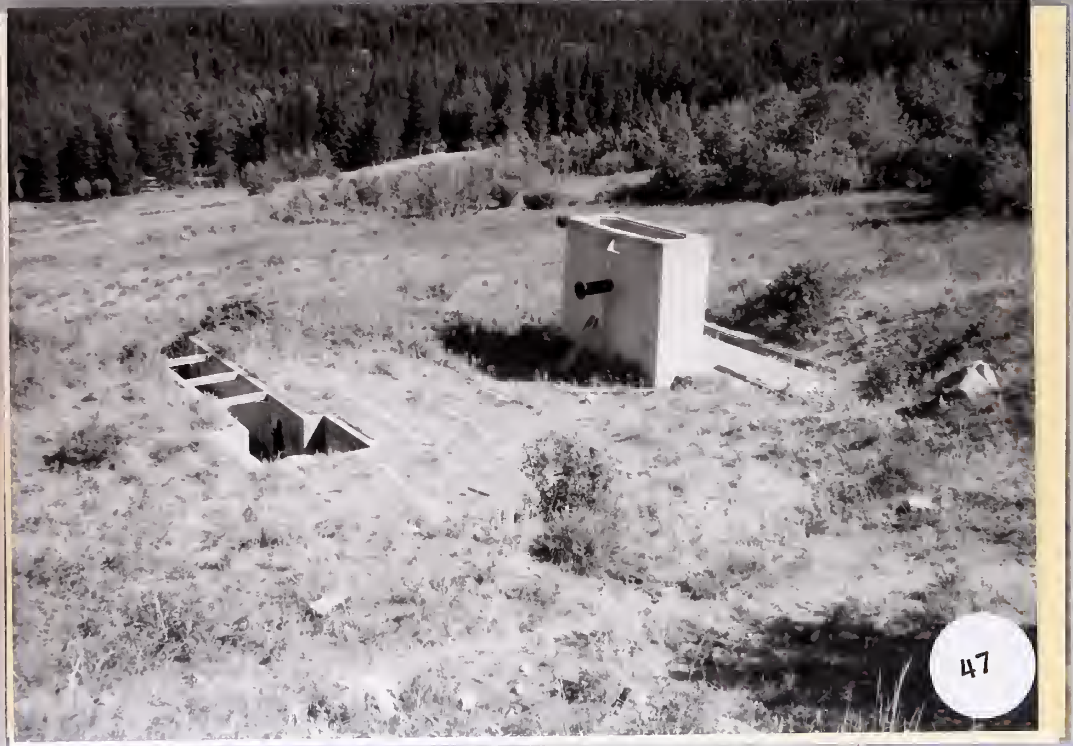
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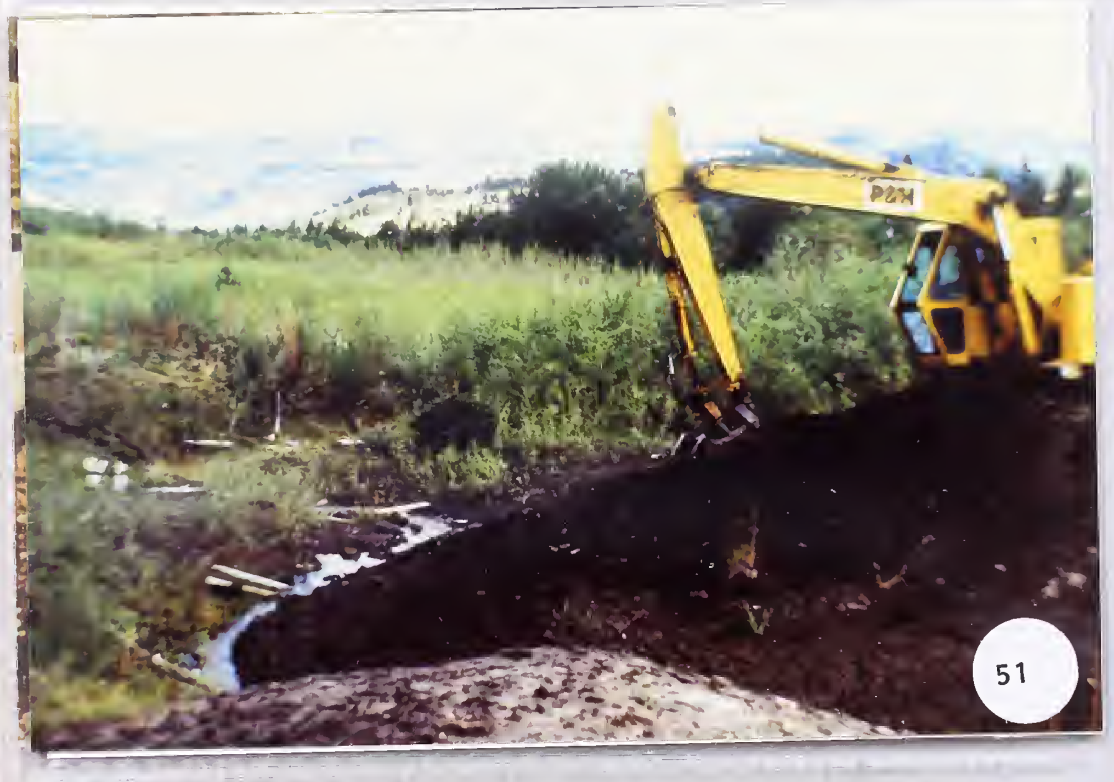
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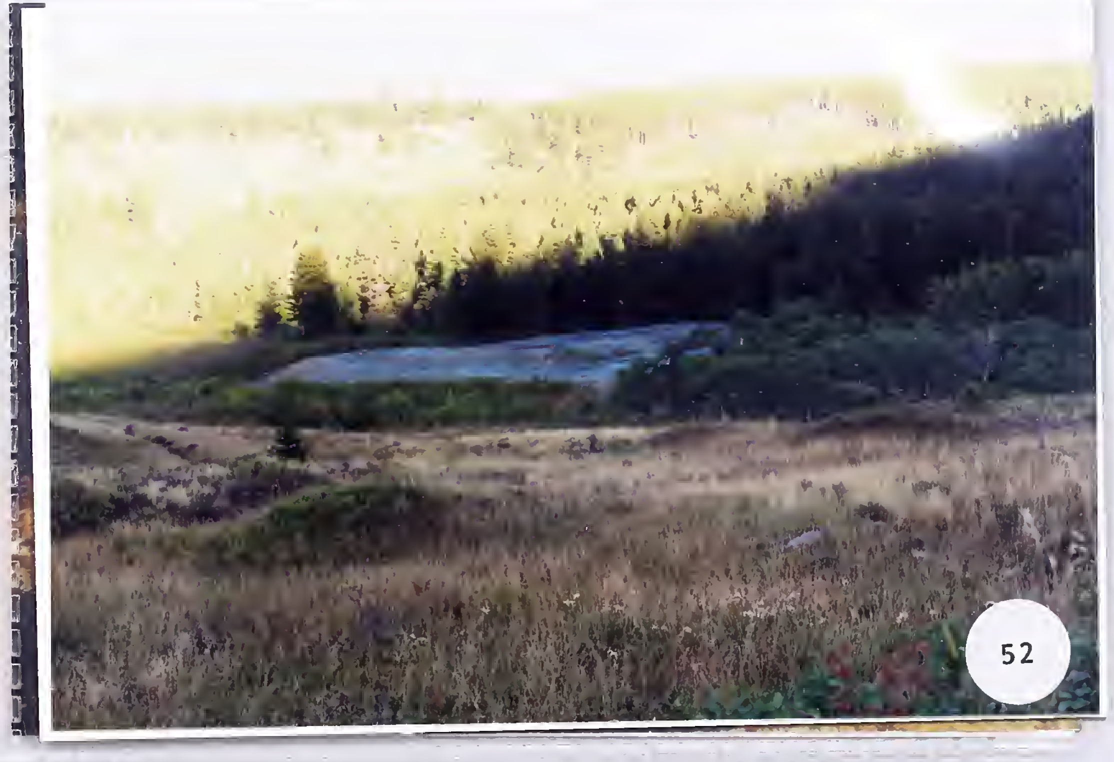
Roll #3 Neg #7A

BENBOW MILL SITE
NYE USGS QUAD
T5S, R16E, SEC. 21
STILLWATER COUNTY

BENBOW PROJECT
DSL AMRB 90-004

BEFORE, DURING, &
AFTER CONSTRUCTION
PHOTOGRAPHS. SLIDE
& PHOTO DESCRIPTIONS
ARE IN FINAL REPORT.
CONSTRUCTION PERIOD:
7/05/90 TO 10/04/90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BENBOW MILL SITE
NYE USGS QUAD
T5S, R16E, SEC. 21
STILLWATER COUNTY

BENBOW PROJECT
DSL AMRB 90-004

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BENBOW MINE

CHROME PEAK SIDE OF PROJECT

AND LITTLE ROCKY CREEK SIDE

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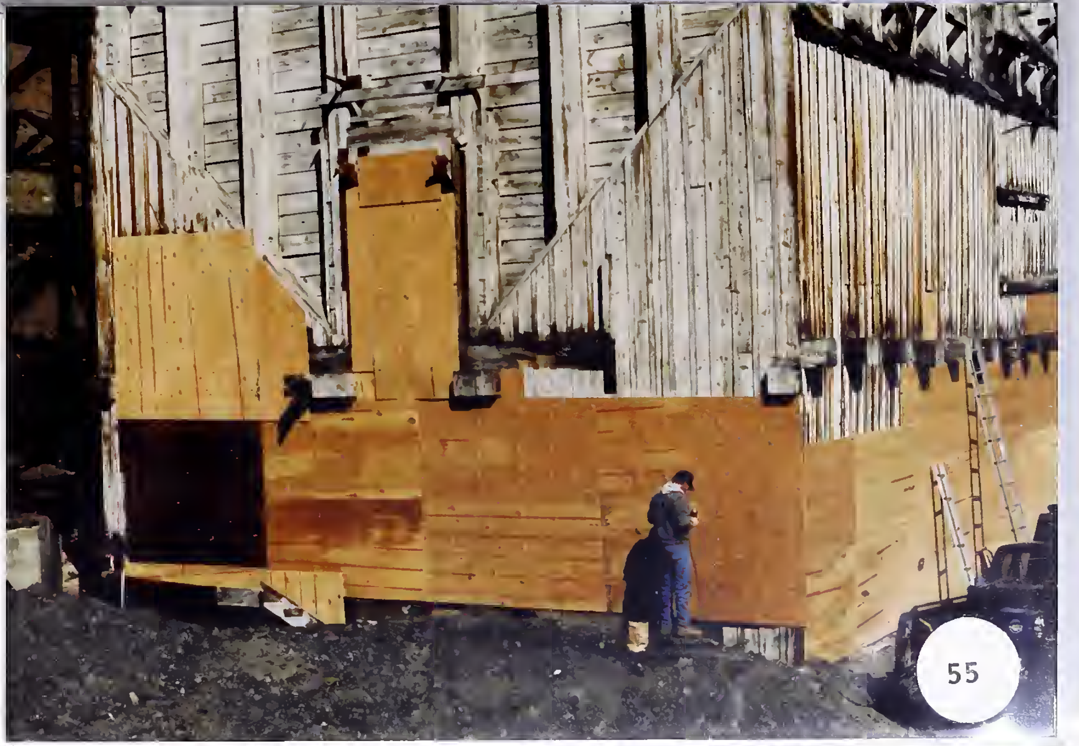
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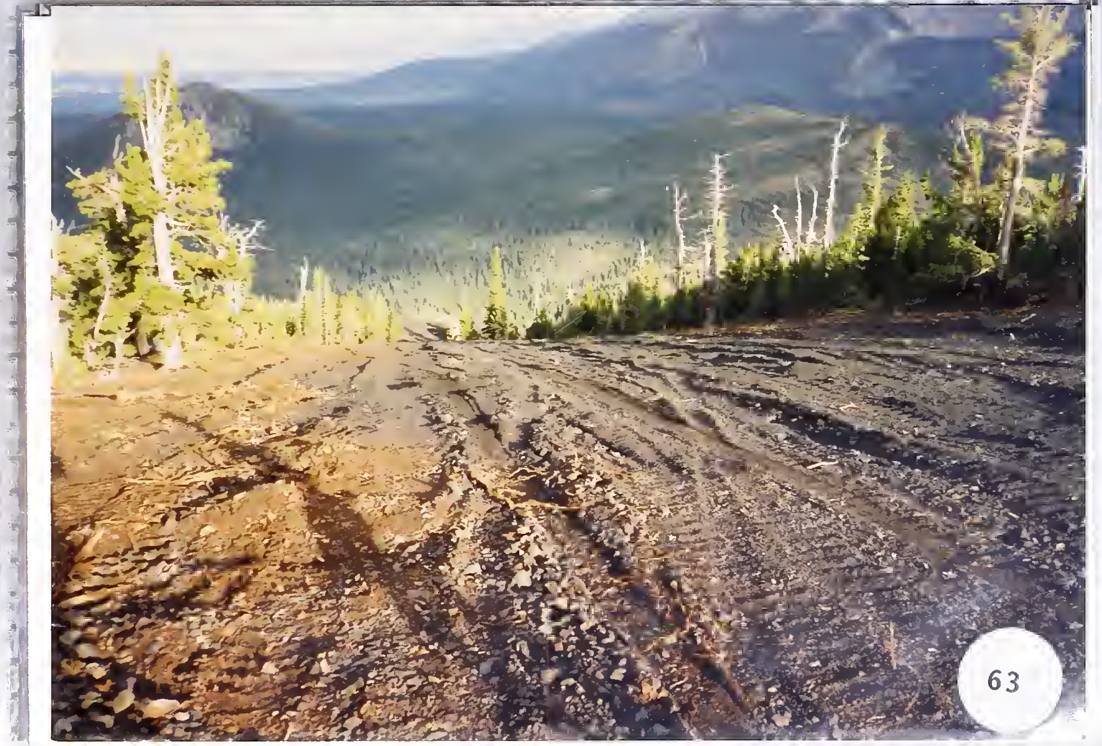

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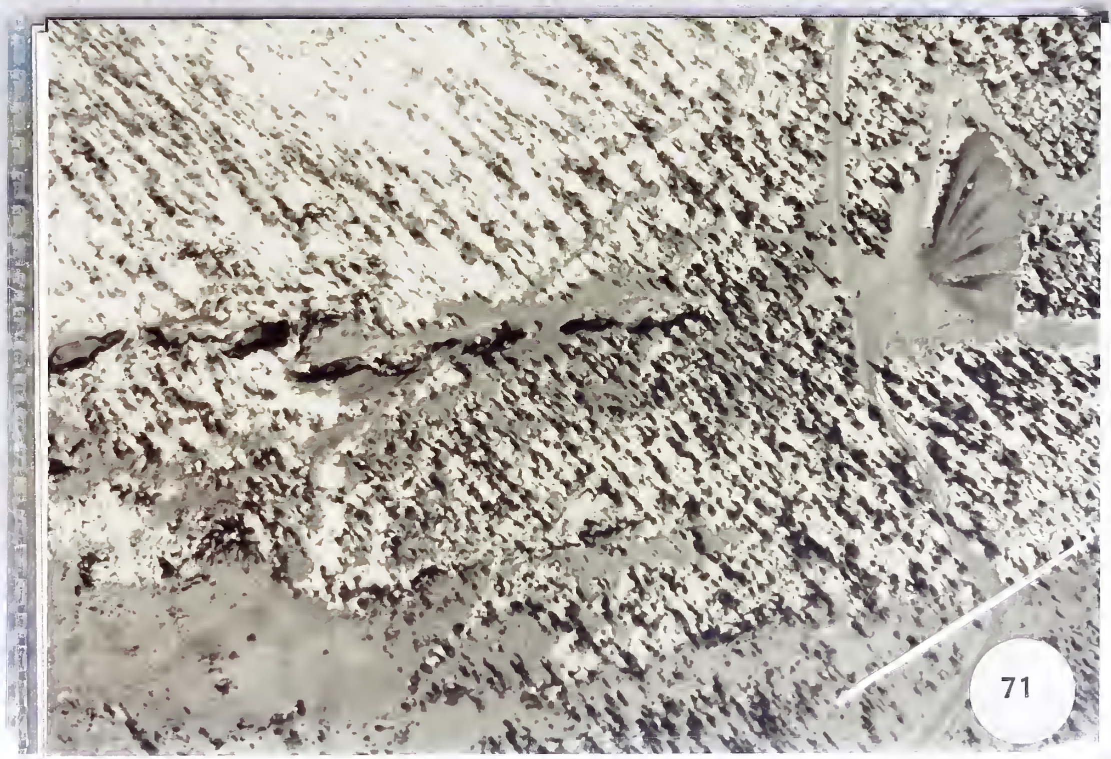

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STEEP
SLOPES
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CATERPILLAR
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CATERPILLAR

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BENBOW MINE SITE
MOUNT WOOD USGS QUAD
T5S, R16E, SEC. 30/31
T5S, R15E, SEC. 25
STILLWATER COUNTY
BENBOW PROJECT
DSL AMRB 90-004

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BENBOW MINE SITE
MOUNT WOOD USGS QUAD
T5S, R16E, SEC. 30/31
T5S, R15E, SEC. 25
STILLWATER COUNTY
BENBOW PROJECT
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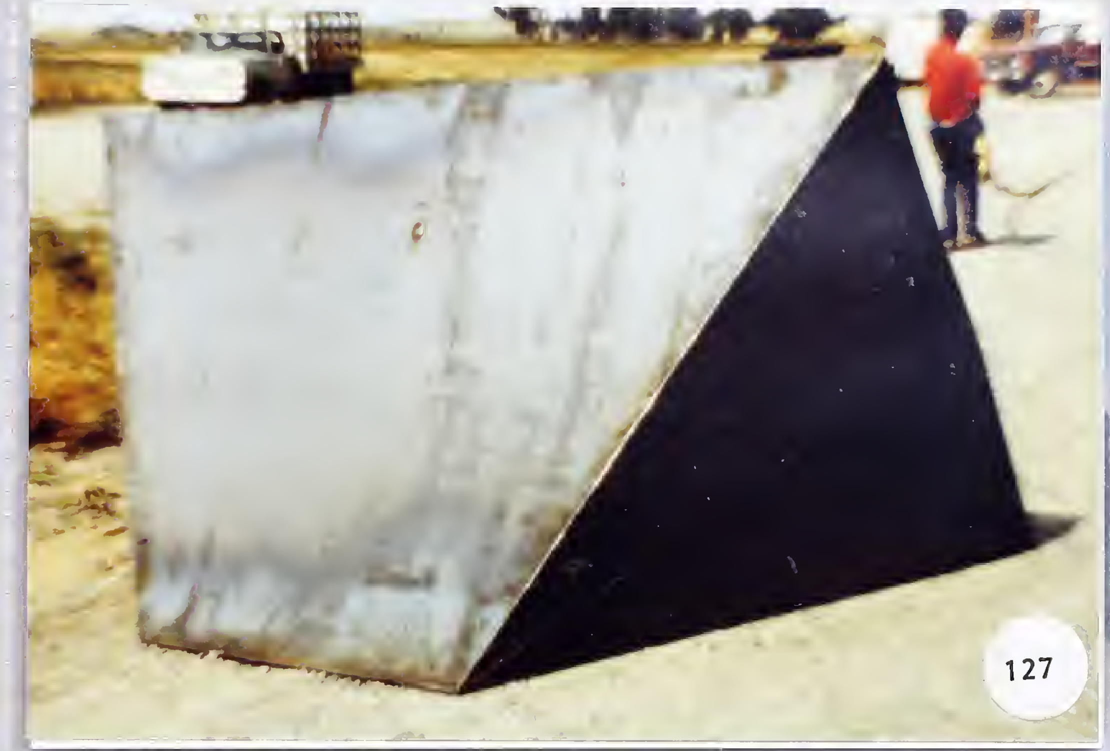

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BENBOW MINE SITE
MOUNT WOOD USGS QUAD
T5S, R16E, SEC. 30/31
T5S, R15E, SEC. 25
STILLWATER COUNTY
BENBOW PROJECT
DSL AMRB 90-004

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# BENBOW MINE SITE
MOUNT WOOD USGS QUAD
T5S, R16E, SEC. 30/31
T5S, R15E, SEC. 25
STILLWATER COUNTY
BENBOW PROJECT
DSL AMRB 90-004

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BENBOW MINE SITE
MOUNT WOOD USGS QUAD
T5S, R16E, SEC. 30/31
T5S, R15E, SEC. 25
STILLWATER COUNTY
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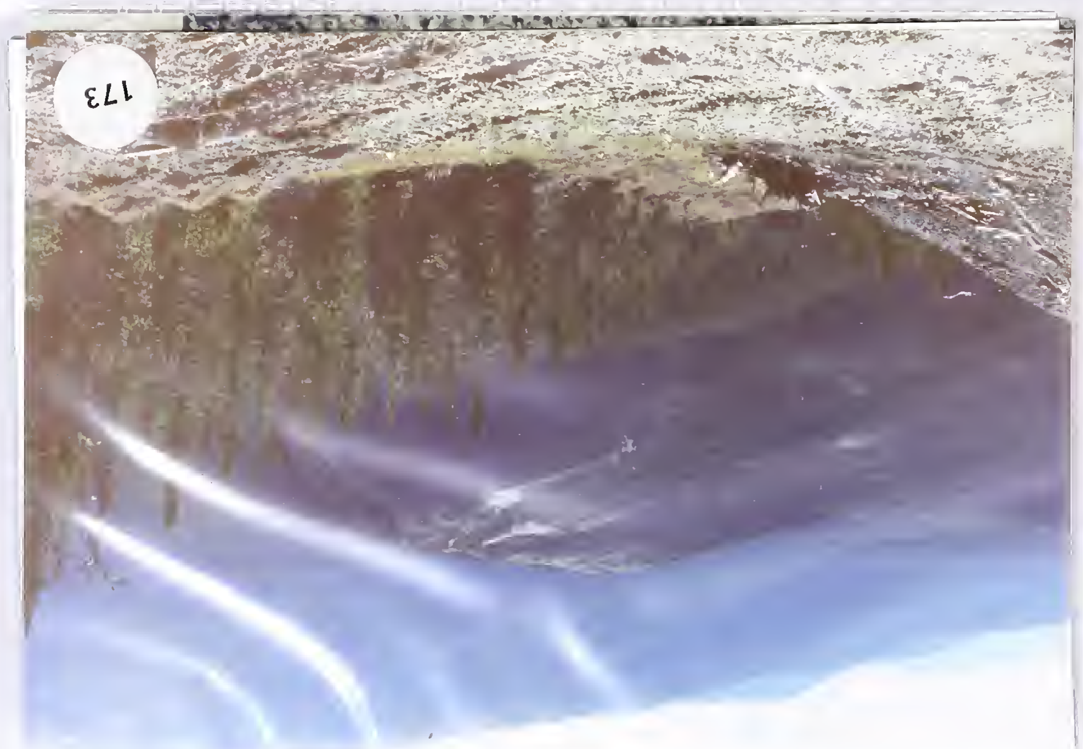

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BENBOW MINE SITE
MOUNT WOOD USGS QUAD
T5S, R16E, SEC. 30/31
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